

Lake Michigan Mass Balance Study Atmospheric Mercury Data Report

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I. Overview

The following document is the Lake Michigan Mass Balance Study Data Report for atmospheric mercury (Hg) samples collected from July 1, 1994 through October 31, 1995. All samples were collected by field technicians selected by EPA and trained by University of Michigan Air Quality Laboratory (UMAQL) personnel. Personnel from the UMAQL conducted a field audit at each sampling site every six months to evaluate the equipment and perform preventive maintenance. No Atmospheric Hg samples were missed because of sampling equipment failure. Particulate phase, vapor phase, and precipitation samples were collected for Hg determination from five locations around Lake Michigan. The five sampling sites were: Bondville, IL (40.03°N , 88.22°W); Chiwaukee Prairie, WI (42.50°N , 87.81°W); IIT-Chicago, IL (41.83°N , 87.62°W); Sleeping Bear Dunes, MI (44.76°N , 86.06°W); and South Haven, MI (42.37°N , 86.33°W). All samples were analyzed at the UMAQL using Cold Vapor Atomic Fluorescence Spectroscopy (CVAFS). A comprehensive discussion of field collection and laboratory analysis techniques can be found in the Lake Michigan Mass Balance Study Methods Compendium (EPA 905-R-97-012a & EPA 905-R-97-012b).

II. Data Report

The following data report includes routine field samples, collocated field samples, and quality control samples (field and storage blanks). This data report is separated into three sections.

Section II.A. includes analysis results for particulate phase Hg samples. Summary statistics, flag frequency tables, and final data results are presented.

Section II.B. includes analysis results for vapor phase Hg samples. Summary statistics, flag frequency tables, and final data results are presented.

Section II.C. includes analysis results for Hg in precipitation samples. Summary statistics, flag frequency tables, and final data results are presented.

II.A. Particulate Phase Hg

II.A.1. Routine Particulate Phase Hg Samples

Twenty-hour composite total particulate phase Hg samples were collected every six days from July 1, 1994 through October 30, 1995 for the Lake Michigan Mass Balance Study (LMMBS). Samples were started at each site at 8:00 am local time and retrieved the following morning. All particulate phase Hg data were corrected to standard temperature and pressure (0°C, 1 atm). Air temperature data was provided by the Illinois State Water Survey (ISWS) and atmospheric pressure data was provided by the National Oceanic and Atmospheric Administration (NOAA). The results of the routine particulate phase Hg samples are summarized below in Table 1.

TABLE 1. LMMBS Routine Particulate Phase Hg Summary

Site	N	Arithmetic Mean (pg m⁻³)	Range (pg m⁻³)
Bondville	74	19	4 – 63
Chiwaukee Prairie	79	24	3 – 108
IIT-Chicago	83	74	8 – 494
Sleeping Bear Dunes	80	12	1 – 41
South Haven	81	19	2 – 69

Analytic Remark Codes (ARC) frequencies for the routine particulate phase Hg samples are summarized below in Table 2 (See Appendix A for explanation of ARC). Only one LMMBS sample was determined to be below detection limit. An analyzer problem was encountered on May 3, 1995 and on June 6, 1995 that resulted in a significant sensitivity drop. Most samples were reanalyzed on another day, however, 7 sample aliquots were used up and the observed values needed to be adjusted using the performance standards (flagged CAJ). Although 10 LMMBS particulate phase Hg samples were flagged GTL, all samples were well within the linear range of the instrument and are considered by the UMAQL to be valid.

TABLE 2. LMMBS Routine Particulate Phase Hg ARC Frequencies

ARC	BDL	CAJ	CLC	GTL	TOTAL
N	1	7	379	10	397
PERCENT	0.25	1.76	95.47	2.52	100.00

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
BON	1	07/07/94	1501	39.80	8.4	3	6	CLC
BON	2	07/13/94	1439	38.50	6.0	2	4	CLC
BON	6	07/19/94	1408	37.89	13.3	1	.	CLC
BON	15	07/25/94	1280	34.71	23.1	2	5	CLC
BON	23	07/31/94	1410	38.29	16.6	2	0	CLC
BON	24	08/06/94	1410	39.21	27.5	2	10	CLC
BON	25	08/12/94	1410	39.07	9.3	2	5	CLC
BON	26	08/18/94	1440	39.41	24.3	2	2	CLC
BON	27	08/24/94	1440	39.64	15.6	2	4	CLC
BON	28	08/30/94	1440	40.43	17.1	1	.	CLC
BON	29	09/05/94	1440	40.59	6.8	2	4	CLC
BON	30	09/11/94	1440	40.22	31.1	2	3	CLC
BON	31	09/17/94	1440	40.53	17.2	2	2	CLC
BON	32	09/23/94	1440	39.75	12.0	2	1	CLC
BON	33	09/29/94	1440	41.13	23.1	2	1	CLC
BON	34	10/05/94	1440	40.57	13.5	2	2	CLC
BON	37	10/23/94	1440	41.08	9.5	2	4	CLC
BON	38	10/29/94	1380	41.58	22.8	2	0	CLC
BON	39	11/04/94	1440	40.49	4.0	2	2	CLC
BON	40	11/10/94	1440	41.44	22.7	2	2	CLC
BON	41	11/16/94	1440	42.08	31.3	2	0	CLC
BON	42	11/22/94	1440	40.93	7.5	2	4	CLC
BON	43	11/28/94	1440	40.56	7.9	2	6	CLC
BON	44	12/04/94	1440	40.70	32.7	2	3	CLC
BON	45	12/10/94	1440	39.24	11.8	2	3	CLC
BON	46	12/16/94	1440	39.03	15.6	2	7	CLC
BON	48	12/28/94	1440	39.87	5.9	2	4	CLC
BON	49	01/03/95	1440	39.48	13.8	2	2	CLC
BON	50	01/09/95	1440	39.78	62.5	2	2	CLC
BON	51	01/15/95	1450	39.03	13.2	2	3	CLC
BON	57	01/21/95	1395	38.91	17.9	2	1	CLC
BON	58	01/27/95	1450	39.80	61.9	2	1	CLC
BON	59	02/02/95	1440	37.94	25.0	2	2	CLC
BON	60	02/08/95	1440	39.06	28.1	2	3	CLC
BON	61	02/20/95	1440	38.91	12.0	2	4	CLC
BON	62	02/26/95	1440	38.11	20.6	2	2	CLC
BON	63	03/04/95	1440	39.38	38.1	2	1	CLC
BON	64	03/10/95	1480	40.59	20.8	2	6	CLC
BON	65	03/16/95	1440	39.17	20.6	2	3	CLC
BON	66	03/22/95	1440	39.24	17.6	2	1	CLC
BON	67	03/28/95	1440	38.66	6.3	2	2	CLC
BON	68	04/03/95	1440	38.57	10.7	2	4	CLC
BON	69	04/09/95	1440	38.48	6.3	2	4	CLC
BON	70	04/15/95	1440	39.79	19.9	1	.	CLC
BON	71	04/21/95	1440	39.57	5.9	2	2	CLC
BON	72	04/27/95	1440	40.04	9.2	2	6	CLC
BON	73	05/03/95	1440	40.67	18.1	2	3	CLC

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
BON	74	05/09/95	1440	39.92	13.0	2	1	CLC
BON	75	05/15/95	1440	40.85	29.5	2	0	CLC
BON	76	05/21/95	1440	40.35	28.3	2	0	CLC
BON	77	05/27/95	1440	40.30	9.6	2	4	CLC
BON	78	06/02/95	1440	40.01	10.5	2	0	CLC
BON	79	06/20/95	1530	42.87	21.6	2	0	CLC
BON	80	07/02/95	1440	40.91	20.9	2	5	CLC
BON	81	07/08/95	1440	41.05	40.7	2	1	CLC
BON	82	07/14/95	1440	40.06	19.3	2	1	CLC
BON	83	07/20/95	1440	40.65	13.4	2	6	CLC
BON	84	07/26/95	1440	40.84	21.7	2	2	CLC
BON	85	08/01/95	1440	40.75	12.3	2	1	CLC
BON	86	08/07/95	1440	40.43	11.8	2	4	CLC
BON	87	08/13/95	1440	40.53	13.7	2	1	CLC
BON	88	08/19/95	1440	40.64	20.8	2	0	CLC
BON	89	08/25/95	1440	40.67	27.1	2	2	CLC
BON	90	08/31/95	1440	40.53	19.8	2	2	CLC
BON	91	09/06/95	1440	40.76	19.9	2	3	CLC
BON	92	09/12/95	1440	40.71	17.8	2	0	CLC
BON	93	09/18/95	1440	41.55	13.6	2	0	CLC
BON	94	09/24/95	1440	41.64	32.2	2	2	CLC
BON	95	09/30/95	1440	41.00	12.8	2	1	CLC
BON	96	10/06/95	1440	40.93	6.3	2	0	CLC
BON	97	10/12/95	1500	43.19	24.5	2	2	CLC
BON	98	10/18/95	1440	41.08	24.8	2	1	CLC
BON	99	10/24/95	1440	41.23	8.2	2	4	CLC
BON	100	10/30/95	1440	41.24	26.6	2	0	CLC
CWP	5	07/19/94	1429	40.74	19.6	2	3	CLC
CWP	17	07/25/94	1421	40.62	19.9	2	4	CLC
CWP	29	07/31/94	1412	41.02	14.3	1	5	CLC
CWP	31	08/06/94	1430	42.31	47.8	2	1	CLC
CWP	32	08/12/94	1455	42.31	17.5	1	.	CLC
CWP	33	08/18/94	1419	41.43	25.6	2	2	CLC
CWP	34	08/24/94	1454	42.02	24.9	2	1	CLC
CWP	35	08/30/94	1440	41.91	16.3	2	2	CLC
CWP	36	09/05/94	1446	41.20	9.2	2	1	CLC
CWP	37	09/11/94	1425	41.66	37.7	2	4	CLC
CWP	38	09/17/94	1440	41.36	20.6	2	1	CLC
CWP	39	09/23/94	1560	45.51	29.8	2	0	CLC
CWP	40	09/29/94	1440	42.49	54.1	2	3	CLC
CWP	41	10/05/94	1440	42.68	81.4	2	0	CLC
CWP	42	10/11/94	1460	44.03	23.1	2	2	CLC
CWP	43	10/17/94	1453	42.89	34.6	2	5	CLC
CWP	44	10/23/94	1458	42.65	7.5	2	0	CLC
CWP	45	10/29/94	1455	42.56	18.3	2	1	CLC
CWP	46	11/04/94	1440	41.80	8.7	2	7	CLC
CWP	47	11/10/94	1443	42.96	10.7	2	6	CLC

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
CWP	48	11/16/94	1440	42.99	108.4	2	1	GTL
CWP	49	11/22/94	1468	43.79	15.2	2	3	CLC
CWP	50	11/28/94	1440	42.20	3.0	2	4	CLC
CWP	51	12/04/94	1440	42.22	37.8	2	5	CLC
CWP	52	12/10/94	1450	43.65	16.0	2	3	CLC
CWP	53	12/16/94	1440	43.03	26.7	2	4	CLC
CWP	54	12/22/94	1440	42.42	7.2	2	4	CLC
CWP	55	12/28/94	1443	42.69	16.6	2	3	CLC
CWP	56	01/03/95	1440	42.39	13.1	2	2	CLC
CWP	57	01/09/95	1452	43.90	20.6	2	2	CLC
CWP	58	01/15/95	1441	42.61	4.5	1	.	CLC
CWP	64	01/21/95	1437	43.34	8.3	2	6	CLC
CWP	65	01/27/95	1442	44.50	34.9	2	1	CLC
CWP	66	02/02/95	1440	43.34	3.8	3	12	CLC
CWP	67	02/08/95	1444	44.71	21.6	2	2	CLC
CWP	68	02/14/95	1457	45.62	71.1	2	4	CLC
CWP	69	02/20/95	1450	43.54	8.2	2	2	CLC
CWP	70	02/26/95	1443	43.84	25.1	2	1	CLC
CWP	71	03/04/95	1475	45.36	51.5	2	3	CLC
CWP	72	03/10/95	1440	43.69	19.8	2	7	CLC
CWP	73	03/16/95	1440	43.17	12.8	1	.	CLC
CWP	74	03/22/95	1443	43.15	4.4	2	2	CLC
CWP	75	03/28/95	1457	43.35	16.0	2	8	CLC
CWP	76	04/03/95	1440	42.00	15.7	2	4	CLC
CWP	77	04/09/95	1468	43.76	6.0	1	.	CLC
CWP	78	04/15/95	1440	42.83	23.2	2	3	CLC
CWP	79	04/21/95	1460	42.67	4.5	2	4	CLC
CWP	80	04/27/95	1460	42.54	10.6	2	4	CLC
CWP	81	05/03/95	1442	42.78	29.8	2	3	CLC
CWP	82	05/09/95	1442	42.54	19.9	2	0	CLC
CWP	83	05/15/95	1453	43.20	60.3	2	2	CLC
CWP	84	05/21/95	1446	42.43	32.0	3	7	CLC
CWP	85	05/27/95	1440	43.08	14.8	2	5	CLC
CWP	86	06/02/95	1456	42.35	30.1	2	1	CLC
CWP	87	06/08/95	1510	44.68	27.0	2	0	CLC
CWP	88	06/14/95	1442	42.40	24.4	2	1	CLC
CWP	89	06/20/95	1487	42.78	31.0	2	1	CLC
CWP	90	06/26/95	1462	41.69	16.3	2	0	CLC
CWP	91	07/02/95	1440	43.64	27.7	2	3	CLC
CWP	92	07/08/95	1451	43.06	34.0	2	2	CLC
CWP	93	07/14/95	1452	41.09	13.6	2	0	CLC
CWP	94	07/20/95	1465	42.08	11.5	1	.	CLC
CWP	95	07/26/95	1445	41.61	12.5	2	5	CLC
CWP	96	08/01/95	1465	42.59	15.3	2	2	CLC
CWP	97	08/07/95	1453	41.83	23.7	2	2	CLC
CWP	98	08/13/95	1450	41.41	12.9	2	6	CLC
CWP	99	08/19/95	1475	42.54	19.9	2	3	CLC

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
CWP	100	08/25/95	1501	43.45	45.0	2	2	CLC
CWP	101	08/31/95	1448	41.34	15.4	2	0	CLC
CWP	102	09/06/95	1440	40.83	9.7	2	3	CLC
CWP	103	09/12/95	1554	45.30	40.4	2	3	CLC
CWP	104	09/18/95	1448	42.72	51.8	2	6	CLC
CWP	105	09/24/95	1440	42.16	30.1	2	1	CLC
CWP	106	09/30/95	1443	41.40	25.2	2	2	CLC
CWP	107	10/06/95	1440	40.28	5.1	2	0	CLC
CWP	108	10/12/95	1453	42.38	37.6	2	2	CLC
CWP	109	10/18/95	1440	42.06	30.3	2	1	CLC
CWP	110	10/24/95	1465	42.52	8.0	2	5	CLC
CWP	111	10/30/95	1440	42.22	14.8	2	5	CLC
IIT	1	06/19/94	1440	40.22	428.1	2	3	GTL
IIT	2	06/25/94	1440	40.13	31.5	2	1	CLC
IIT	3	07/01/94	1454	40.12	45.6	2	1	CLC
IIT	4	07/07/94	1440	39.50	50.9	2	1	CLC
IIT	5	07/13/94	1438	39.81	89.8	2	7	CLC
IIT	10	07/19/94	1376	39.63	155.9	1	4	CLC
IIT	22	07/25/94	1376	39.85	143.7	2	4	CLC
IIT	34	07/31/94	1412	40.47	27.7	1	11	CLC
IIT	36	08/06/94	1496	46.55	493.9	2	0	CLC
IIT	37	08/12/94	1440	44.00	47.9	2	4	CLC
IIT	38	08/18/94	1445	42.74	65.4	2	1	CLC
IIT	39	08/24/94	1440	44.24	22.5	2	6	CLC
IIT	40	08/30/94	1455	46.90	67.7	2	3	CLC
IIT	41	09/05/94	1440	45.11	25.5	2	3	CLC
IIT	42	09/11/94	1440	43.95	86.7	2	2	CLC
IIT	43	09/17/94	1440	44.08	138.2	2	2	GTL
IIT	44	09/24/94	1460	47.10	77.9	2	2	CLC
IIT	45	09/29/94	1440	45.69	187.9	2	0	GTL
IIT	46	10/05/94	1440	47.56	41.0	2	3	CLC
IIT	47	10/11/94	1440	46.07	43.5	2	4	CLC
IIT	48	10/17/94	1440	41.97	40.4	2	9	CLC
IIT	49	10/23/94	1440	43.49	43.9	2	5	CLC
IIT	50	10/29/94	1440	45.78	55.9	2	1	CLC
IIT	51	11/04/94	1440	43.50	100.9	2	9	CLC
IIT	52	11/10/94	1440	45.29	41.9	2	1	CLC
IIT	53	11/16/94	1440	44.90	258.0	2	1	GTL
IIT	54	11/22/94	1440	46.25	40.8	2	1	CLC
IIT	55	11/28/94	1440	43.81	8.2	2	6	CLC
IIT	56	12/04/94	1440	43.14	118.6	2	5	CLC
IIT	57	12/10/94	1450	44.47	80.0	2	4	CLC
IIT	58	12/16/94	1440	43.98	41.4	2	4	CLC
IIT	59	12/22/94	1440	43.49	49.8	2	4	CLC
IIT	60	01/03/95	1440	44.21	64.9	2	4	CLC
IIT	61	01/09/95	1440	44.04	66.0	2	6	CLC
IIT	62	01/15/95	1361	38.19	39.6	2	9	CLC

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
IIT	74	01/21/95	1410	42.27	17.0	2	7	CLC
IIT	76	01/27/95	1440	43.76	68.4	2	2	CLC
IIT	77	02/02/95	1440	42.53	11.2	2	9	CLC
IIT	78	02/08/95	1440	44.51	104.1	2	3	GTL
IIT	79	02/14/95	1440	44.18	154.8	2	3	GTL
IIT	80	02/20/95	1440	43.36	39.8	2	4	CLC
IIT	81	02/26/95	1500	44.11	20.1	2	0	CLC
IIT	82	03/04/95	1440	43.72	81.1	2	3	CLC
IIT	83	03/10/95	1440	44.42	28.9	1	.	CLC
IIT	84	03/16/95	1440	42.14	30.0	2	3	CLC
IIT	85	03/22/95	1440	42.48	103.4	2	3	GTL
IIT	86	03/28/95	1440	42.87	94.9	2	0	GTL
IIT	87	04/03/95	1440	42.10	24.2	2	3	CLC
IIT	88	04/09/95	1440	42.83	10.4	2	6	CLC
IIT	89	04/15/95	1440	43.08	40.8	1	.	CLC
IIT	90	04/21/95	1440	42.20	45.9	2	2	CLC
IIT	91	04/27/95	1440	41.46	19.0	1	.	CLC
IIT	92	05/03/95	1440	42.20	93.7	2	2	CLC
IIT	93	05/09/95	1440	41.55	50.4	2	3	CLC
IIT	94	05/15/95	1440	41.95	58.0	2	2	CLC
IIT	95	05/22/95	1440	40.47	55.6	2	4	CLC
IIT	96	05/27/95	1440	41.34	33.5	2	6	CLC
IIT	97	06/02/95	1440	39.01	49.7	2	0	CLC
IIT	98	06/08/95	1440	41.72	40.1	2	3	CLC
IIT	99	06/14/95	1440	42.10	68.6	2	2	CLC
IIT	100	06/20/95	1440	41.50	34.4	2	4	CLC
IIT	101	06/26/95	1500	43.90	53.3	2	0	CLC
IIT	102	07/02/95	1440	42.85	60.0	2	1	CLC
IIT	103	07/08/95	1440	42.85	69.5	2	1	CLC
IIT	104	07/14/95	1440	40.50	37.2	2	4	CLC
IIT	105	07/20/95	1445	41.62	88.5	2	2	CLC
IIT	106	07/27/95	1440	40.98	35.7	2	3	CLC
IIT	107	08/01/95	1440	41.25	35.7	2	3	CLC
IIT	108	08/07/95	1450	41.27	43.8	2	1	CLC
IIT	109	08/13/95	1440	39.91	30.6	2	1	CLC
IIT	110	08/20/95	1440	41.18	44.8	2	1	CLC
IIT	111	08/25/95	1440	41.16	54.7	2	1	CLC
IIT	112	08/31/95	1440	40.57	46.2	2	0	CLC
IIT	113	09/06/95	1440	41.02	77.5	2	1	CLC
IIT	114	09/12/95	1440	41.86	56.5	2	1	CLC
IIT	115	09/18/95	1440	41.83	229.8	2	3	CLC
IIT	116	09/24/95	1441	43.12	182.7	2	2	GTL
IIT	117	09/30/95	1440	41.80	43.5	2	4	CLC
IIT	118	10/06/95	1440	41.91	22.9	2	3	CLC
IIT	119	10/12/95	1440	42.11	51.2	2	2	CLC
IIT	120	10/18/95	1440	42.61	61.5	2	1	CLC
IIT	121	10/24/95	1440	42.44	77.8	2	4	CLC

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
IIT	122	10/30/95	1440	43.15	15.8	2	4	CLC
SBD	1	06/25/94	1310	38.28	9.7	2	6	CLC
SBD	2	07/01/94	1385	39.77	12.1	1	.	CLC
SBD	3	07/07/94	1455	42.16	41.3	2	3	CLC
SBD	4	07/13/94	1418	41.66	10.9	1	.	CLC
SBD	7	07/19/94	1427	41.26	19.2	1	.	CLC
SBD	13	07/25/94	1442	42.89	11.3	1	.	CLC
SBD	19	07/31/94	1477	43.24	12.2	2	1	CLC
SBD	20	08/06/94	1410	41.91	19.0	2	0	CLC
SBD	21	08/12/94	1406	42.00	8.3	2	0	CLC
SBD	22	08/18/94	1420	42.77	12.8	2	2	CLC
SBD	23	08/24/94	1429	42.03	13.7	2	1	CLC
SBD	24	08/30/94	1428	39.05	9.8	2	1	CLC
SBD	25	09/05/94	1407	38.23	11.4	2	2	CLC
SBD	26	09/11/94	1418	38.24	17.5	2	4	CLC
SBD	27	09/17/94	1444	37.42	7.9	2	3	CLC
SBD	28	09/23/94	1409	37.70	24.7	2	4	CLC
SBD	29	09/29/94	1410	37.81	6.2	2	3	CLC
SBD	30	10/05/94	1401	38.62	17.2	2	7	CLC
SBD	32	10/17/94	1395	41.80	30.2	2	3	CLC
SBD	33	10/23/94	1396	41.54	2.4	2	1	CLC
SBD	34	10/29/94	1401	43.28	17.8	3	10	CLC
SBD	35	11/04/94	1428	42.14	5.3	2	4	CLC
SBD	36	11/10/94	1433	42.53	5.8	2	3	CLC
SBD	37	11/16/94	1420	42.85	14.2	2	2	CLC
SBD	38	11/22/94	1392	42.15	5.4	2	8	CLC
SBD	39	11/28/94	1433	43.15	2.1	2	4	CLC
SBD	41	12/10/94	1425	43.69	8.3	2	13	CLC
SBD	42	12/16/94	1422	42.47	13.2	2	19	CLC
SBD	43	12/22/94	1462	43.35	8.1	2	5	CLC
SBD	44	12/28/94	1428	40.97	1.0	1	.	BDL
SBD	45	01/03/95	1442	45.57	2.4	1	.	CLC
SBD	46	01/09/95	1444	44.62	3.9	2	0	CLC
SBD	47	01/15/95	1380	42.23	1.5	1	.	CAJ
SBD	53	01/21/95	1396	42.52	1.8	1	.	CAJ
SBD	54	01/27/95	1416	44.68	9.6	2	10	CLC
SBD	55	02/02/95	1178	36.36	6.1	2	9	CLC
SBD	56	02/08/95	1422	44.62	10.5	2	3	CLC
SBD	57	02/14/95	1431	44.44	23.0	2	1	CLC
SBD	58	02/20/95	1453	42.68	10.8	2	1	CLC
SBD	59	02/26/95	1370	41.39	10.0	2	5	CLC
SBD	60	03/04/95	1453	43.09	38.2	2	3	CLC
SBD	61	03/10/95	1463	43.75	19.5	2	3	CLC
SBD	62	03/16/95	1435	41.73	1.7	2	0	CLC
SBD	63	03/22/95	1440	42.05	2.3	2	5	CLC
SBD	64	03/28/95	1436	42.39	11.8	2	7	CLC
SBD	65	04/03/95	1424	40.54	11.4	2	9	CLC

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
SBD	66	04/09/95	1395	41.55	4.6	1	.	CLC
SBD	67	04/15/95	1432	42.74	10.3	2	4	CLC
SBD	68	04/21/95	1440	41.54	5.1	1	.	CLC
SBD	69	04/27/95	1399	40.34	7.0	3	9	CLC
SBD	70	05/03/95	1366	40.15	14.3	2	15	CLC
SBD	71	05/09/95	1420	40.91	21.0	2	2	CLC
SBD	72	05/15/95	1386	39.66	24.3	2	1	CLC
SBD	73	05/21/95	1404	39.25	6.5	1	.	CLC
SBD	74	05/27/95	1540	44.58	12.6	1	.	CLC
SBD	75	06/02/95	1420	41.08	19.7	2	1	CLC
SBD	76	06/08/95	1415	41.00	11.2	2	1	CLC
SBD	77	06/14/95	1321	38.21	16.3	2	5	CLC
SBD	78	06/20/95	1418	40.56	8.5	2	1	CLC
SBD	79	06/26/95	1427	40.68	5.0	2	3	CLC
SBD	80	07/02/95	1409	39.92	15.8	2	2	CLC
SBD	81	07/08/95	1511	43.74	19.7	2	1	CLC
SBD	82	07/14/95	1340	37.41	16.1	2	4	CLC
SBD	83	07/20/95	1412	39.58	4.0	1	.	CLC
SBD	84	07/26/95	1416	39.05	11.7	2	2	CLC
SBD	85	08/01/95	1644	41.77	6.8	2	5	CLC
SBD	86	08/07/95	1417	39.46	7.1	2	7	CLC
SBD	87	08/13/95	1437	40.18	10.5	2	3	CLC
SBD	88	08/19/95	1490	41.71	20.8	2	1	CLC
SBD	90	08/31/95	1467	40.58	8.7	2	2	CLC
SBD	91	09/06/95	1481	41.79	13.5	2	5	CLC
SBD	92	09/12/95	1462	42.27	30.1	2	3	CLC
SBD	93	09/18/95	1407	40.61	16.6	2	2	CLC
SBD	94	09/24/95	1441	42.36	17.8	2	1	CLC
SBD	95	09/30/95	1478	41.19	20.4	2	2	CLC
SBD	96	10/06/95	1867	52.02	1.8	2	1	CLC
SBD	97	10/12/95	1373	38.75	27.2	2	1	CLC
SBD	98	10/18/95	1440	40.93	8.0	2	5	CLC
SBD	99	10/24/95	1432	39.55	1.8	1	.	CLC
SBD	100	10/30/95	1438	42.01	2.2	1	.	CLC
SHN	1	06/19/94	1466	42.63	14.1	1	.	CLC
SHN	3	07/01/94	1447	40.97	25.8	2	1	CLC
SHN	4	07/07/94	1472	41.46	13.9	1	.	CLC
SHN	5	07/13/94	1463	42.67	21.0	2	3	CLC
SHN	9	07/19/94	1390	39.58	21.1	1	.	CLC
SHN	18	07/25/94	1451	44.20	19.6	2	2	CLC
SHN	27	07/31/94	1407	43.62	14.6	2	5	CLC
SHN	29	08/06/94	1444	45.30	22.5	2	8	CLC
SHN	30	08/12/94	1472	46.68	8.7	2	2	CLC
SHN	31	08/18/94	1406	45.34	18.8	2	2	CLC
SHN	32	08/24/94	1389	44.10	29.6	2	0	CLC
SHN	33	08/30/94	1476	47.90	14.5	2	2	CLC
SHN	34	09/05/94	1441	47.20	15.0	2	1	CLC

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
SHN	36	09/17/94	1406	45.19	21.0	2	1	CLC
SHN	37	09/23/94	1458	47.98	12.8	1	.	CLC
SHN	38	09/29/94	1425	46.22	15.8	2	1	CLC
SHN	39	10/05/94	1447	48.21	14.4	1	.	CLC
SHN	40	10/11/94	1434	47.26	13.6	2	0	CLC
SHN	41	10/17/94	1425	46.66	24.3	2	1	CLC
SHN	42	10/23/94	1466	47.30	5.5	2	9	CLC
SHN	43	10/29/94	1445	45.75	13.4	2	12	CLC
SHN	44	11/04/94	1361	44.91	2.4	1	.	CLC
SHN	45	11/10/94	1433	46.80	7.1	2	6	CLC
SHN	46	11/16/94	1433	47.03	55.8	2	4	CLC
SHN	47	11/22/94	1398	45.66	4.7	2	3	CLC
SHN	49	12/04/94	1447	47.32	6.8	2	3	CLC
SHN	50	12/10/94	1413	46.50	2.1	2	3	CLC
SHN	51	12/16/94	1450	46.69	69.0	2	4	CAJ
SHN	52	12/22/94	1439	46.79	45.9	2	4	CAJ
SHN	53	12/28/94	1412	44.85	3.2	1	.	CAJ
SHN	54	01/03/95	1452	47.48	8.2	1	.	CAJ
SHN	55	01/09/95	1469	48.29	12.3	2	8	CAJ
SHN	56	01/15/95	1439	43.68	2.4	2	3	CLC
SHN	62	01/21/95	1390	42.44	2.7	3	6	CLC
SHN	63	01/27/95	1475	46.16	45.8	2	5	CLC
SHN	64	02/02/95	1496	45.91	14.2	2	1	CLC
SHN	65	02/08/95	1417	44.76	28.5	2	0	CLC
SHN	66	02/14/95	1358	43.69	29.1	2	0	CLC
SHN	67	02/20/95	1404	42.92	11.6	2	0	CLC
SHN	68	02/26/95	1458	45.70	34.4	2	1	CLC
SHN	69	03/04/95	1422	45.04	51.9	2	3	CLC
SHN	70	03/10/95	1421	45.12	33.5	2	2	CLC
SHN	71	03/16/95	1432	44.89	23.5	2	3	CLC
SHN	72	03/22/95	1490	47.11	7.3	2	8	CLC
SHN	73	03/28/95	1433	44.09	15.1	2	3	CLC
SHN	74	04/03/95	1479	45.10	18.5	2	2	CLC
SHN	75	04/09/95	1479	46.10	9.2	1	.	CLC
SHN	76	04/15/95	1459	44.87	21.0	2	1	CLC
SHN	77	04/21/95	1446	43.92	7.5	1	.	CLC
SHN	78	04/27/95	1441	42.43	4.8	2	3	CLC
SHN	79	05/03/95	1443	44.09	19.4	2	3	CLC
SHN	80	05/09/95	1414	42.43	14.5	2	1	CLC
SHN	81	05/15/95	1466	44.30	28.3	2	3	CLC
SHN	82	05/21/95	1566	47.45	18.2	2	3	CLC
SHN	83	05/27/95	1428	43.17	22.9	2	3	CLC
SHN	84	06/02/95	1451	44.21	24.0	2	0	CLC
SHN	85	06/08/95	1452	45.10	18.8	2	2	CLC
SHN	86	06/14/95	1450	44.94	33.1	2	2	CLC
SHN	87	06/20/95	1443	43.70	14.6	2	0	CLC
SHN	88	06/26/95	1430	42.82	11.7	2	9	CLC

The Lake Michigan Mass Balance Study Routine Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
SHN	89	07/02/95	1464	44.99	20.2	2	2	CLC
SHN	90	07/08/95	1489	45.66	18.5	2	4	CLC
SHN	91	07/14/95	1452	42.26	18.0	2	6	CLC
SHN	92	07/20/95	1443	42.31	8.1	2	3	CLC
SHN	93	07/26/95	1452	42.97	22.0	2	1	CLC
SHN	94	08/01/95	1460	42.01	19.1	2	0	CLC
SHN	95	08/07/95	1445	43.56	19.7	2	0	CLC
SHN	96	08/13/95	1498	43.64	16.5	2	1	CLC
SHN	97	08/19/95	1423	41.93	23.5	2	0	CLC
SHN	98	08/25/95	1424	42.59	25.9	2	3	CLC
SHN	99	08/31/95	1481	43.41	28.5	2	0	CLC
SHN	100	09/07/95	1285	39.28	21.0	2	1	CLC
SHN	101	09/12/95	1427	42.16	34.0	2	1	CLC
SHN	102	09/18/95	1448	42.55	14.5	2	1	CLC
SHN	103	09/24/95	1380	40.32	22.3	2	2	CLC
SHN	104	09/30/95	1453	41.74	19.4	2	0	CLC
SHN	105	10/06/95	1462	41.75	6.4	2	3	CLC
SHN	106	10/12/95	1423	41.48	31.8	2	1	CLC
SHN	107	10/18/95	1451	42.25	23.4	2	0	CLC
SHN	108	10/24/95	1459	42.08	15.2	2	2	CLC
SHN	109	10/30/95	1423	40.78	9.9	1	.	CLC

II.A.2. Collocated Particulate Phase Hg Samples

Collocated 12 hour composite total particulate phase Hg samples were collected at the IIT-Chicago sampling site during the Atmospheric Exchange Over Lakes and Oceans Study (AEOLOS) intensive from July 17, 1994 through August 1, 1994. Thirty one collocated sample pairs were collected. The mean total particulate phase Hg concentration was 68 pg m^{-3} , with a range from 16 pg m^{-3} to 283 pg m^{-3} . Every collocated particulate phase Hg sample had a CLC analytic remark code.

The Lake Michigan Mass Balance Study Co-located Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
IIT	6	07/17/94	679	19.44	16.9	1	.	CLC
IIT	6	07/17/94	679	18.90	16.0	2	6	CLC
IIT	7	07/17/94	694	20.50	205.8	2	5	CLC
IIT	7	07/17/94	691	20.81	194.7	3	3	CLC
IIT	8	07/18/94	677	19.12	35.2	1	.	CLC
IIT	8	07/18/94	677	20.11	30.2	2	4	CLC
IIT	9	07/18/94	721	20.13	81.7	1	.	CLC
IIT	9	07/18/94	721	18.44	91.2	2	1	CLC
IIT	10	07/19/94	667	19.22	28.3	1	.	CLC
IIT	10	07/19/94	668	19.82	34.7	2	8	CLC
IIT	11	07/19/94	709	20.41	275.1	2	4	CLC
IIT	11	07/19/94	709	21.21	282.9	2	6	CLC
IIT	12	07/20/94	690	19.84	38.6	2	1	CLC
IIT	12	07/20/94	690	20.28	40.5	1	.	CLC
IIT	13	07/20/94	716	20.25	32.1	2	3	CLC
IIT	13	07/20/94	715	20.79	27.6	1	.	CLC
IIT	14	07/21/94	659	19.45	58.5	1	.	CLC
IIT	14	07/21/94	659	19.60	54.4	1	.	CLC
IIT	15	07/21/94	691	19.62	33.9	2	1	CLC
IIT	15	07/21/94	691	20.39	29.7	1	.	CLC
IIT	16	07/22/94	679	19.65	18.7	1	.	CLC
IIT	16	07/22/94	679	20.12	18.0	2	4	CLC
IIT	17	07/22/94	712	20.27	51.4	2	1	CLC
IIT	17	07/22/94	712	20.76	56.9	2	6	CLC
IIT	18	07/23/94	693	20.44	33.0	2	7	CLC
IIT	18	07/23/94	693	20.37	33.0	1	.	CLC
IIT	19	07/23/94	700	19.62	92.4	1	.	CLC
IIT	19	07/23/94	700	21.08	79.0	1	.	CLC
IIT	20	07/24/94	715	20.96	27.4	1	.	CLC
IIT	20	07/24/94	715	21.26	23.3	2	2	CLC
IIT	21	07/24/94	692	19.76	58.4	2	0	CLC
IIT	21	07/24/94	693	20.35	53.6	1	.	CLC
IIT	22	07/25/94	680	19.88	36.5	2	3	CLC
IIT	22	07/25/94	680	20.26	33.7	1	.	CLC
IIT	23	07/25/94	696	19.97	249.5	4	5	CLC
IIT	23	07/25/94	696	20.23	244.9	1	.	CLC
IIT	24	07/26/94	687	20.11	31.8	2	8	CLC
IIT	24	07/26/94	687	20.31	32.4	1	.	CLC
IIT	25	07/26/94	696	20.19	51.1	1	.	CLC
IIT	25	07/26/94	696	20.92	44.6	2	3	CLC
IIT	26	07/27/94	680	20.04	38.1	2	1	CLC
IIT	26	07/27/94	680	20.56	31.8	2	2	CLC
IIT	27	07/27/94	709	20.49	49.7	2	2	CLC
IIT	27	07/27/94	709	21.07	48.0	1	.	CLC
IIT	28	07/28/94	697	20.36	21.5	2	2	CLC
IIT	28	07/28/94	697	20.97	23.8	1	.	CLC
IIT	29	07/28/94	700	19.84	115.7	1	.	CLC

The Lake Michigan Mass Balance Study Co-located Particulate Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
IIT	29	07/28/94	699	20.76	95.3	2	3	CLC
IIT	30	07/29/94	685	19.96	32.0	1	.	CLC
IIT	30	07/29/94	685	20.94	28.8	2	2	CLC
IIT	31	07/29/94	717	20.40	201.8	3	2	CLC
IIT	31	07/29/94	717	21.39	198.5	2	4	CLC
IIT	32	07/30/94	705	20.46	42.0	2	7	CLC
IIT	32	07/30/94	705	21.41	37.6	1	.	CLC
IIT	33	07/30/94	694	19.86	60.2	2	0	CLC
IIT	33	07/30/94	694	20.64	62.6	1	.	CLC
IIT	34	07/31/94	695	20.09	23.5	1	.	CLC
IIT	34	07/31/94	695	20.88	25.1	2	6	CLC
IIT	35	07/31/94	717	20.38	30.9	2	11	CLC
IIT	35	07/31/94	717	21.32	31.9	1	.	CLC
IIT	38	08/18/94	1445	42.74	65.4	2	1	CLC
IIT	38	08/18/94	1440	42.37	56.9	2	1	CLC

II.A.3. Particulate Phase Hg Field Blanks

Field blanks were collected on 25% of the LMMBS scheduled sampling days at each site. The field blanks were taken to quantify the contamination due to handling and setup of the sampling equipment. The results of particulate phase Hg field blanks that were used for blank correction are summarized below in Table 3. There was a statistically significant difference in the field blank values by site ($p=0.003$). Field blank correction was, therefore, calculated and applied by site.

TABLE 3. LMMBS Particulate Phase Hg Field Blank Summary

SITE	N	MEAN (pg/filter)
Bondville	18	6
Chiwaukee Prairie	20	9
IIT-Chicago	14	18
Sleeping Bear Dunes	18	6
South Haven	20	20
All	90	12

The analytic remark code summary for the particulate phase Hg field blanks are presented below in Table 4. Most of the particulate phase Hg field blanks (92 %) were below detection limit. Samples with an FFR analytic remark code were not used for blank correction.

TABLE 4. LMMBS Particulate Phase Hg Field Blank ARC Summary

ARC	BDL	CLC	FFR	TOTAL
N	87	3	5	95
PERCENT	91.58	3.16	5.26	100.00

The Lake Michigan Mass Balance Study Particulate Phase Hg Field Blanks

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
BON	3	07/25/94	2	0.00	0.0	1	.	BDL
BON	5	07/31/94	2	0.00	0.0	1	.	BDL
BON	6	08/24/94	2	0.00	0.0	1	.	BDL
BON	7	09/17/94	2	0.00	0.0	1	.	BDL
BON	9	11/04/94	2	0.00	103.0	1	.	FFR
BON	10	11/28/94	2	0.00	0.0	1	.	BDL
BON	11	12/16/94	2	0.00	6.4	1	.	BDL
BON	12	01/15/95	2	0.00	0.0	1	.	BDL
BON	14	02/02/95	2	0.00	16.3	1	.	BDL
BON	15	02/26/95	2	0.00	6.7	1	.	BDL
BON	16	03/22/95	2	0.00	0.0	1	.	BDL
BON	17	04/15/95	2	0.00	0.0	1	.	BDL
BON	18	05/09/95	2	0.00	15.2	1	.	BDL
BON	19	06/02/95	2	0.00	19.8	1	.	BDL
BON	20	07/20/95	2	0.00	8.2	1	.	BDL
BON	21	08/25/95	2	0.00	0.7	1	.	BDL
BON	22	09/06/95	2	0.00	2.8	1	.	BDL
BON	23	09/30/95	2	0.00	0.0	1	.	BDL
BON	24	10/24/95	2	0.00	26.2	1	.	BDL
CWP	3	07/25/94	2	0.00	0.0	1	.	BDL
CWP	5	07/31/94	2	0.00	2.2	1	.	BDL
CWP	6	08/24/94	2	0.00	18.6	1	.	BDL
CWP	7	09/18/94	2	0.00	8.8	1	.	BDL
CWP	8	10/11/94	2	0.00	0.0	1	.	BDL
CWP	9	11/04/94	2	0.00	0.0	1	.	BDL
CWP	10	11/28/94	2	0.00	0.0	1	.	BDL
CWP	11	12/16/94	2	0.00	0.0	1	.	BDL
CWP	12	01/15/95	2	0.00	31.7	1	.	BDL
CWP	14	02/02/95	2	0.00	0.0	1	.	BDL
CWP	15	02/26/95	2	0.00	10.8	1	.	BDL
CWP	16	03/22/95	2	0.00	14.7	1	.	BDL
CWP	17	04/15/95	2	0.00	5.4	1	.	BDL
CWP	18	05/09/95	2	0.00	29.5	1	.	BDL
CWP	19	06/02/95	2	0.00	14.1	1	.	BDL
CWP	20	06/26/95	2	0.00	26.9	1	.	BDL
CWP	21	07/20/95	2	0.00	35.3	1	.	FFR
CWP	22	08/25/95	2	0.00	0.0	1	.	BDL
CWP	23	09/06/95	2	0.00	0.0	1	.	BDL
CWP	24	09/30/95	2	0.00	0.0	1	.	BDL
CWP	25	10/24/95	2	0.00	25.4	1	.	BDL
IIT	1	06/13/94	2	0.00	13.3	1	.	BDL
IIT	2	07/07/94	2	0.00	0.0	1	.	BDL
IIT	5	07/25/94	2	0.00	9.2	1	.	BDL
IIT	6	07/31/94	2	0.00	7.8	1	.	BDL
IIT	7	08/24/94	2	0.00	23.5	1	.	BDL
IIT	8	09/25/94	2	0.00	44.7	1	.	CLC
IIT	9	10/11/94	2	0.00	0.0	1	.	BDL
IIT	10	11/04/94	2	0.00	92.9	1	.	FFR

The Lake Michigan Mass Balance Study Particulate Phase Hg Field Blanks

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
IIT	11	11/28/94	2	0.00	0.2	1	.	BDL
IIT	13	02/02/95	2	0.00	5.8	1	.	BDL
IIT	14	05/10/95	2	0.00	35.5	1	.	BDL
IIT	15	06/26/95	2	0.00	73.5	1	.	CLC
IIT	16	07/21/95	2	0.00	0.0	1	.	BDL
IIT	17	09/06/95	2	0.00	20.7	1	.	BDL
IIT	18	09/30/95	2	0.00	11.3	1	.	BDL
SBD	2	11/17/94	2	0.00	13.5	1	.	BDL
SBD	3	11/22/94	2	0.00	0.0	1	.	BDL
SBD	4	11/29/94	2	0.00	0.0	1	.	BDL
SBD	5	12/11/94	2	0.00	0.0	1	.	BDL
SBD	7	12/29/94	2	0.00	0.0	1	.	BDL
SBD	8	01/10/95	2	0.00	0.0	1	.	BDL
SBD	11	12/17/94	2	0.00	0.0	1	.	BDL
SBD	14	01/27/95	2	0.00	0.9	1	.	BDL
SBD	15	02/03/95	2	0.00	0.0	1	.	BDL
SBD	16	02/26/95	2	0.00	0.0	1	.	BDL
SBD	17	03/23/95	2	0.00	16.6	1	.	BDL
SBD	18	04/16/95	2	0.00	27.8	1	.	BDL
SBD	19	05/09/95	2	0.00	29.8	1	.	FFR
SBD	20	06/02/95	2	0.00	9.2	1	.	BDL
SBD	21	06/26/95	2	0.00	22.0	1	.	BDL
SBD	22	07/21/95	2	0.00	10.3	1	.	BDL
SBD	24	09/06/95	2	0.00	0.0	1	.	BDL
SBD	25	10/01/95	2	0.00	0.0	1	.	BDL
SBD	26	10/25/95	2	0.00	0.0	1	.	BDL
SHN	3	07/25/94	2	0.00	42.3	1	.	BDL
SHN	5	07/31/94	2	0.00	16.4	1	.	BDL
SHN	6	08/30/94	2	0.00	19.2	1	.	BDL
SHN	7	10/11/94	2	0.00	0.0	1	.	BDL
SHN	8	11/05/94	2	0.00	19.4	1	.	BDL
SHN	9	12/10/94	2	0.00	43.0	1	.	BDL
SHN	10	12/22/94	2	0.00	37.2	1	.	BDL
SHN	11	01/15/95	2	0.00	17.1	1	.	BDL
SHN	13	02/03/95	2	0.00	0.0	1	.	BDL
SHN	14	02/26/95	2	0.00	7.6	1	.	BDL
SHN	15	03/22/95	2	0.00	0.0	1	.	BDL
SHN	16	04/15/95	2	0.00	22.5	1	.	BDL
SHN	17	05/09/95	2	0.00	15.7	1	.	BDL
SHN	18	06/02/95	2	0.00	38.9	1	.	BDL
SHN	19	06/26/95	2	0.00	45.8	1	.	CLC
SHN	20	07/20/95	2	0.00	34.6	1	.	BDL
SHN	21	08/25/95	2	0.00	50.5	1	.	FFR
SHN	22	09/07/95	2	0.00	16.6	1	.	BDL
SHN	23	10/01/95	2	0.00	26.7	1	.	BDL
SHN	24	10/24/95	2	0.00	0.0	1	.	BDL
SHN	99	10/17/94	2	0.00	5.0	1	.	BDL

II.A.4. Particulate Phase Hg Storage Blanks

Storage blanks were collected on 10% of the LMMBS scheduled sampling days at each site. The storage blanks were collected to quantify the contamination due to storage of the filters at the sampling sites. The results of particulate phase Hg storage blanks are summarized below in Table 5.

TABLE 5. LMMBS Particulate Phase Hg Storage Blank Summary

SITE	N	MEAN (pg/filter)
Bondville	8	4
Chiwaukee Prairie	9	11
IIT-Chicago	12	8
Sleeping Bear Dunes	9	6
South Haven	5	40
All	43	11

The analytic remark code summary for the particulate phase Hg storage blanks are presented below in Table 6. Most of the particulate phase Hg storage blanks (95%) were below detection limit.

TABLE 6. LMMBS Particulate Phase Hg Storage Blank ARC Summary

ARC	BDL	CLC	TOTAL
N	41	2	43
PERCENT	95.35	4.65	100.00

The Lake Michigan Mass Balance Study Particulate Phase Hg Storage Blanks

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (pg m ⁻³)	Replicates	CV	ARC
BON	1	07/07/94	0	0.00	3.7	1	.	BDL
BON	3	08/30/94	0	0.00	0.0	1	.	BDL
BON	4	09/05/94	0	0.00	0.0	1	.	BDL
BON	8	03/16/95	0	0.00	1.1	1	.	BDL
BON	9	05/15/95	0	0.00	3.4	1	.	BDL
BON	10	07/14/95	0	0.00	1.5	1	.	BDL
BON	11	08/19/95	0	0.00	1.8	1	.	BDL
BON	12	10/30/95	0	0.00	23.7	1	.	BDL
CWP	2	08/30/94	0	0.00	37.4	1	.	BDL
CWP	3	09/05/94	0	0.00	0.0	1	.	BDL
CWP	4	10/17/94	0	0.00	0.0	1	.	BDL
CWP	5	12/22/94	0	0.00	0.0	1	.	BDL
CWP	7	03/16/95	0	0.00	0.0	1	.	BDL
CWP	8	05/15/95	0	0.00	11.2	1	.	BDL
CWP	9	07/14/95	0	0.00	39.6	1	.	BDL
CWP	10	08/19/95	0	0.00	5.0	1	.	BDL
CWP	11	10/30/95	0	0.00	3.3	1	.	BDL
IIT	1	06/25/94	0	0.00	15.1	1	.	BDL
IIT	2	07/25/94	0	0.00	3.1	1	.	BDL
IIT	4	08/19/94	0	0.00	0.0	1	.	BDL
IIT	5	10/18/94	0	0.00	0.0	1	.	BDL
IIT	6	10/22/94	0	0.00	20.1	1	.	BDL
IIT	8	02/02/95	0	0.00	6.1	1	.	BDL
IIT	9	03/16/95	0	0.00	0.0	1	.	BDL
IIT	10	05/16/95	0	0.00	19.3	1	.	BDL
IIT	11	07/14/95	0	0.00	0.6	1	.	BDL
IIT	12	08/21/95	0	0.00	27.3	1	.	BDL
IIT	13	10/30/95	0	0.00	1.6	1	.	BDL
IIT	99	06/18/94	0	0.00	3.5	1	.	BDL
SBD	1	11/17/94	0	0.00	0.0	1	.	BDL
SBD	2	12/05/94	0	0.00	0.0	1	.	BDL
SBD	6	12/23/94	0	0.00	3.7	1	.	BDL
SBD	7	01/04/95	0	0.00	0.0	1	.	BDL
SBD	9	03/16/95	0	0.00	7.9	1	.	BDL
SBD	10	05/15/95	0	0.00	21.5	1	.	BDL
SBD	11	07/14/95	0	0.00	8.7	1	.	BDL
SBD	12	08/20/95	0	0.00	6.8	1	.	BDL
SBD	13	10/30/95	0	0.00	8.0	1	.	BDL
SHN	3	12/28/94	0	0.00	68.2	1	.	CLC
SHN	6	05/15/95	0	0.00	31.7	1	.	BDL
SHN	7	07/14/95	0	0.00	79.1	1	.	CLC
SHN	8	09/19/95	0	0.00	21.3	1	.	BDL
SHN	9	10/30/95	0	0.00	2.4	1	.	BDL

II.B. Vapor Phase Hg

II.B.1. Routine Vapor Phase Hg Samples

Twenty-hour vapor phase Hg samples were collected every six days from July 1, 1994 through October 30, 1995 for the LMMBS. Samples were started at each site at 8:00 am local time and retrieved the following morning. All vapor phase Hg data were corrected to standard temperature and pressure (0°C, 1 atm). Air temperature data was provided the ISWS and atmospheric pressure data was provided by the NOAA. Each vapor phase sample result is the sum of two separate analysis (trap A and trap B). The results of the routine vapor phase Hg samples are summarized below in Table 7.

TABLE 7. LMMBS Routine Vapor Phase Hg Summary

Site	N	Arithmetic Mean (ng m ⁻³)	Range (ng m ⁻³)
Bondville	74	2.1	1.3 – 3.8
Chiwaukee Prairie	73	2.2	1.2 – 5.7
IIT-Chicago	80	3.6	1.6 – 22.2
Sleeping Bear Dunes	79	2.1	1.4 – 5.0
South Haven	79	2.2	1.4 – 6.1

Analytic remark code frequencies for the routine vapor phase Hg samples are summarized below in Table 8. One sample from Sleeping Bear Dunes was not included in the routine sample summary and was flagged FBK as a result of gross contamination to both of the sample traps and the field blank. Although 8 LMMBS vapor phase Hg samples were flagged GTL, all samples were well within the linear range of the instrument and are considered by the UMAQL to be valid. Six samples were not included in the routine sample summary and were flagged LTC because concentration values were less than the criteria for detection.

TABLE 8. LMMBS Routine Vapor Phase Hg ARC Frequencies

ARC	CLC	FBK	GTL	LTC	TOTAL
N	377	1	8	6	392
PERCENT	96.17	0.26	2.04	1.53	100.00

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
BON	1	07/07/94	1494	0.40	1.9	CLC
BON	2	07/13/94	1433	0.39	1.9	CLC
BON	6	07/19/94	1406	0.39	2.0	CLC
BON	15	07/25/94	1278	0.35	1.6	CLC
BON	23	07/31/94	1410	0.38	2.5	CLC
BON	24	08/06/94	1410	0.40	1.5	CLC
BON	25	08/12/94	1410	0.39	2.1	CLC
BON	26	08/18/94	1440	0.41	2.2	CLC
BON	27	08/24/94	1440	0.40	1.8	CLC
BON	28	08/30/94	1440	0.40	3.8	CLC
BON	29	09/05/94	1440	0.41	2.9	CLC
BON	30	09/11/94	1440	0.40	2.1	CLC
BON	31	09/17/94	1440	0.38	2.2	CLC
BON	32	09/23/94	1443	0.41	2.1	CLC
BON	33	09/29/94	1440	0.41	2.0	CLC
BON	34	10/05/94	1440	0.41	2.5	CLC
BON	37	10/23/94	1440	0.41	2.5	CLC
BON	38	10/29/94	1380	0.39	3.0	CLC
BON	39	11/04/94	1440	0.40	2.9	CLC
BON	40	11/10/94	1440	0.42	2.2	CLC
BON	41	11/16/94	1440	0.43	2.1	CLC
BON	42	11/22/94	1440	0.44	1.7	CLC
BON	43	11/28/94	1440	0.42	1.6	CLC
BON	44	12/04/94	1440	0.41	2.2	CLC
BON	45	12/10/94	1440	0.43	1.8	CLC
BON	46	12/16/94	1440	0.13	3.1	CLC
BON	48	12/28/94	1440	0.43	1.6	CLC
BON	49	01/03/95	1440	0.45	1.6	CLC
BON	50	01/09/95	1440	0.45	2.0	CLC
BON	51	01/15/95	1450	0.43	2.0	CLC
BON	57	01/21/95	1395	0.43	1.5	CLC
BON	58	01/27/95	1450	0.44	2.2	CLC
BON	59	02/02/95	1440	0.43	1.8	CLC
BON	60	02/08/95	1440	0.46	1.7	CLC
BON	61	02/20/95	1440	0.42	2.1	CLC
BON	62	02/26/95	1440	0.42	2.2	CLC
BON	63	03/04/95	1440	0.43	2.0	CLC
BON	64	03/10/95	1480	0.44	1.9	CLC
BON	65	03/16/95	1440	0.41	2.1	CLC
BON	66	03/22/95	1440	0.41	2.0	CLC
BON	67	03/28/95	1440	0.42	1.9	CLC
BON	68	04/03/95	1440	0.41	1.3	CLC
BON	69	04/09/95	1440	0.41	2.0	CLC
BON	70	04/15/95	1440	0.41	2.2	CLC
BON	71	04/21/95	1440	0.41	2.5	CLC
BON	72	04/27/95	1440	0.41	1.8	CLC
BON	73	05/03/95	1440	0.41	2.4	CLC

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m³)	Result (ng m⁻³)	ARC
BON	74	05/09/95	1440	0.40	1.8	CLC
BON	75	05/15/95	1440	0.41	1.9	CLC
BON	76	05/21/95	1440	0.40	1.9	CLC
BON	77	05/27/95	1440	0.40	1.9	CLC
BON	78	06/02/95	1440	0.40	2.1	CLC
BON	79	06/20/95	1440	0.39	2.2	CLC
BON	80	07/02/95	1440	0.40	3.5	CLC
BON	81	07/08/95	1440	0.40	1.8	CLC
BON	82	07/14/95	1440	0.39	2.3	CLC
BON	83	07/20/95	1440	0.40	3.0	CLC
BON	84	07/26/95	1440	0.39	2.4	CLC
BON	85	08/01/95	1440	0.40	2.3	CLC
BON	86	08/07/95	1440	0.39	2.5	CLC
BON	87	08/13/95	1440	0.39	2.2	CLC
BON	88	08/19/95	1440	0.39	1.7	CLC
BON	89	08/25/95	1440	0.40	1.5	CLC
BON	90	08/31/95	1440	0.39	2.2	CLC
BON	91	09/06/95	1440	0.40	1.6	CLC
BON	92	09/12/95	1440	0.40	1.7	CLC
BON	93	09/18/95	1440	0.41	1.7	CLC
BON	94	09/24/95	1440	0.42	1.6	CLC
BON	95	09/30/95	1440	0.40	1.7	CLC
BON	96	10/06/95	1440	0.41	1.5	CLC
BON	97	10/12/95	1500	0.42	1.6	CLC
BON	98	10/18/95	1440	0.40	1.7	CLC
BON	99	10/24/95	1440	0.42	1.3	CLC
BON	100	10/30/95	1440	0.42	1.7	CLC
CWP	4	07/19/94	1428	0.39	2.2	CLC
CWP	16	07/25/94	1425	0.39	1.8	CLC
CWP	28	07/31/94	1419	0.39	2.5	CLC
CWP	30	08/06/94	1442	0.41	5.7	CLC
CWP	31	08/12/94	1449	0.41	4.9	CLC
CWP	32	08/18/94	1486	0.41	3.5	CLC
CWP	33	08/24/94	1438	0.40	2.9	CLC
CWP	34	08/30/94	1440	0.40	2.4	CLC
CWP	35	09/05/94	1462	0.41	1.4	CLC
CWP	36	09/11/94	1446	0.41	2.4	CLC
CWP	37	09/17/94	1440	0.41	1.8	CLC
CWP	38	09/23/94	1570	0.44	2.1	CLC
CWP	39	09/29/94	1440	0.41	2.6	CLC
CWP	40	10/05/94	1440	0.42	2.3	CLC
CWP	41	10/11/94	1466	0.43	2.1	CLC
CWP	42	10/17/94	1459	0.41	2.8	CLC
CWP	43	10/23/94	1464	0.42	1.8	CLC
CWP	44	10/29/94	1461	0.41	2.1	CLC
CWP	45	11/04/94	1440	0.41	2.5	CLC
CWP	46	11/10/94	1445	0.42	1.2	CLC

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
CWP	47	11/16/94	1440	0.43	4.8	GTL
CWP	48	11/22/94	1470	0.44	1.7	CLC
CWP	49	11/28/94	1440	0.41	1.6	CLC
CWP	50	12/04/94	1440	0.42	1.7	CLC
CWP	51	12/10/94	1452	0.44	1.7	CLC
CWP	52	12/16/94	1440	0.43	1.8	CLC
CWP	53	12/22/94	1440	0.43	2.1	CLC
CWP	54	12/28/94	1440	0.43	1.3	CLC
CWP	55	01/03/95	1440	0.45	.	LTC
CWP	56	01/09/95	1452	0.46	1.7	CLC
CWP	57	01/15/95	1441	0.44	2.1	CLC
CWP	63	01/21/95	1437	0.43	2.2	CLC
CWP	64	01/27/95	1442	0.44	2.2	CLC
CWP	65	02/02/95	1440	0.43	1.9	CLC
CWP	66	02/08/95	1444	0.45	1.9	CLC
CWP	67	02/14/95	1457	0.47	1.8	CLC
CWP	68	02/26/95	1443	0.44	1.9	CLC
CWP	69	03/04/95	1475	0.45	2.3	CLC
CWP	70	03/10/95	1440	0.43	2.3	CLC
CWP	71	03/16/95	1440	0.42	2.2	CLC
CWP	72	03/22/95	1437	0.42	2.3	CLC
CWP	73	03/28/95	1423	0.42	2.0	CLC
CWP	74	04/03/95	1440	0.41	2.5	CLC
CWP	75	04/09/95	1412	0.42	1.7	CLC
CWP	76	04/15/95	1440	0.43	2.0	CLC
CWP	77	04/21/95	1420	0.41	2.0	CLC
CWP	78	04/27/95	1420	0.41	1.8	CLC
CWP	79	05/03/95	1438	0.42	2.1	CLC
CWP	80	05/09/95	1438	0.42	2.1	CLC
CWP	81	05/21/95	1434	0.41	2.1	CLC
CWP	82	05/27/95	1434	0.41	2.3	CLC
CWP	83	06/02/95	1424	0.40	2.2	CLC
CWP	84	06/08/95	1370	0.40	1.7	CLC
CWP	85	06/14/95	1438	0.40	3.2	CLC
CWP	87	06/26/95	1462	0.40	2.8	CLC
CWP	88	07/02/95	1440	0.41	2.1	CLC
CWP	89	07/08/95	1451	0.41	2.1	CLC
CWP	90	07/14/95	1452	0.39	2.4	CLC
CWP	91	07/20/95	1466	0.40	2.6	CLC
CWP	92	07/26/95	1445	0.40	2.0	CLC
CWP	93	08/01/95	1465	0.41	2.1	CLC
CWP	94	08/07/95	1453	0.40	2.1	CLC
CWP	95	08/13/95	1450	0.39	2.2	CLC
CWP	96	08/19/95	1475	0.41	2.0	CLC
CWP	97	08/25/95	1501	0.41	2.6	CLC
CWP	98	08/31/95	1448	0.39	2.3	CLC
CWP	99	09/06/95	1440	0.40	0.8	LTC

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
CWP	100	09/12/95	1545	0.44	2.1	CLC
CWP	101	09/18/95	1448	0.42	1.0	LTC
CWP	102	09/24/95	1440	0.42	1.5	CLC
CWP	103	09/30/95	1443	0.40	1.9	CLC
CWP	104	10/06/95	1440	0.40	1.6	CLC
CWP	105	10/12/95	1454	0.41	1.8	CLC
CWP	106	10/18/95	1440	0.41	1.6	CLC
CWP	107	10/24/95	1465	0.42	1.6	CLC
CWP	108	10/30/95	1440	0.43	1.2	CLC
IIT	1	06/19/94	1440	0.43	3.0	CLC
IIT	2	06/25/94	1440	0.39	3.8	CLC
IIT	3	07/01/94	1450	0.32	3.3	CLC
IIT	4	07/07/94	1440	0.39	4.8	CLC
IIT	5	07/13/94	1445	0.41	2.5	CLC
IIT	10	07/19/94	1380	0.38	2.9	CLC
IIT	22	07/25/94	1386	0.37	3.8	CLC
IIT	34	07/31/94	1410	0.38	22.2	CLC
IIT	36	08/06/94	1433	0.39	10.5	GTL
IIT	37	08/12/94	1440	0.39	3.6	CLC
IIT	38	08/18/94	1450	0.39	4.0	CLC
IIT	39	08/24/94	1440	0.38	4.2	CLC
IIT	40	08/30/94	1445	0.39	8.7	CLC
IIT	41	09/11/94	1440	0.39	4.1	CLC
IIT	42	09/17/94	1440	0.39	4.3	CLC
IIT	43	09/24/94	1455	0.39	5.6	GTL
IIT	44	09/29/94	1445	0.40	3.8	CLC
IIT	45	10/05/94	1440	0.40	3.6	CLC
IIT	46	10/11/94	1440	0.41	5.4	GTL
IIT	47	10/17/94	1440	0.39	5.8	GTL
IIT	48	10/29/94	1440	0.40	3.3	CLC
IIT	49	11/04/94	1440	0.39	16.3	GTL
IIT	50	11/10/94	1440	0.41	2.9	CLC
IIT	51	11/16/94	1440	0.41	2.8	CLC
IIT	52	11/22/94	1440	0.42	2.2	CLC
IIT	53	11/28/94	1440	0.40	1.6	CLC
IIT	54	12/04/94	1440	0.40	4.2	CLC
IIT	55	12/10/94	1450	0.42	2.4	CLC
IIT	56	12/16/94	1440	0.41	4.5	GTL
IIT	57	12/22/94	1440	0.41	3.5	CLC
IIT	58	01/03/95	1440	0.44	2.2	CLC
IIT	59	01/09/95	1440	0.43	2.1	CLC
IIT	60	01/15/95	1360	0.38	2.0	CLC
IIT	72	01/21/95	1409	0.41	2.3	CLC
IIT	76	01/27/95	1440	0.42	2.8	CLC
IIT	77	02/02/95	1440	0.41	1.9	CLC
IIT	78	02/08/95	1440	0.44	2.0	CLC
IIT	79	02/14/95	1440	0.43	2.7	CLC

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
IIT	80	02/20/95	1440	0.41	2.7	CLC
IIT	81	02/26/95	1440	0.42	2.4	CLC
IIT	82	03/04/95	1440	0.42	2.0	CLC
IIT	83	03/10/95	1440	0.41	2.9	CLC
IIT	84	03/16/95	1440	0.41	2.7	CLC
IIT	85	03/22/95	1440	0.41	2.9	CLC
IIT	86	03/28/95	1440	0.41	3.4	CLC
IIT	87	04/03/95	1440	0.40	2.5	CLC
IIT	88	04/09/95	1440	0.41	2.0	CLC
IIT	89	04/15/95	1440	0.41	2.1	CLC
IIT	90	04/21/95	1440	0.40	2.4	CLC
IIT	91	04/27/95	1440	0.40	2.7	CLC
IIT	92	05/03/95	1440	0.40	2.7	CLC
IIT	93	05/09/95	1440	0.39	2.9	CLC
IIT	94	05/15/95	1440	0.39	2.9	CLC
IIT	95	05/22/95	1440	0.39	2.5	CLC
IIT	96	05/27/95	1440	0.40	2.9	CLC
IIT	97	06/02/95	1440	0.39	3.8	CLC
IIT	98	06/08/95	1440	0.40	1.9	CLC
IIT	99	06/14/95	1440	0.38	3.1	CLC
IIT	100	06/20/95	1440	0.38	2.9	CLC
IIT	101	06/26/95	1380	0.37	.	LTC
IIT	102	07/02/95	1410	0.38	2.6	CLC
IIT	103	07/08/95	1440	0.39	3.2	CLC
IIT	104	07/14/95	1440	0.37	3.7	CLC
IIT	105	07/20/95	1445	0.38	3.4	CLC
IIT	106	07/27/95	1440	0.38	3.0	CLC
IIT	107	08/01/95	1440	0.38	3.6	CLC
IIT	108	08/07/95	1450	0.38	4.1	CLC
IIT	109	08/13/95	1440	0.37	4.1	CLC
IIT	110	08/20/95	1440	0.38	2.8	CLC
IIT	111	08/25/95	1440	0.38	3.2	CLC
IIT	112	08/31/95	1440	0.38	2.8	CLC
IIT	113	09/06/95	1440	0.38	3.5	CLC
IIT	114	09/12/95	1440	0.39	2.6	CLC
IIT	115	09/18/95	1440	0.39	2.4	CLC
IIT	116	09/24/95	1441	0.40	2.9	CLC
IIT	117	09/30/95	1440	0.38	2.3	CLC
IIT	118	10/06/95	1440	0.39	2.3	CLC
IIT	119	10/12/95	1440	0.39	2.4	CLC
IIT	120	10/18/95	1440	0.39	2.1	CLC
IIT	121	10/24/95	1440	0.40	2.4	CLC
IIT	122	10/30/95	1440	0.41	2.3	CLC
SBD	1	06/25/94	1305	0.36	2.2	CLC
SBD	2	07/01/94	1397	0.37	1.8	CLC
SBD	3	07/07/94	1420	0.38	1.7	CLC
SBD	4	07/13/94	1413	0.39	0.5	LTC

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
SBD	7	07/19/94	1430	0.38	1.6	CLC
SBD	13	07/25/94	1440	0.38	2.9	CLC
SBD	19	07/31/94	1413	0.37	22.2	FBK
SBD	20	08/06/94	1410	0.40	5.0	CLC
SBD	21	08/12/94	1440	0.41	3.2	CLC
SBD	22	08/18/94	1430	0.41	3.3	CLC
SBD	23	08/24/94	1425	0.37	4.2	CLC
SBD	24	08/30/94	1428	0.42	2.7	CLC
SBD	25	09/05/94	1406	0.41	3.2	CLC
SBD	26	09/11/94	1416	0.40	2.9	CLC
SBD	27	09/17/94	1439	0.38	1.6	CLC
SBD	28	09/23/94	1410	0.39	2.7	CLC
SBD	29	09/29/94	1408	0.40	2.2	CLC
SBD	30	10/05/94	1398	0.33	2.4	CLC
SBD	32	10/17/94	1386	0.28	3.5	CLC
SBD	33	10/23/94	1391	0.38	1.6	CLC
SBD	34	10/29/94	1394	0.38	2.2	CLC
SBD	35	11/04/94	1421	0.39	2.7	CLC
SBD	36	11/10/94	1451	0.42	2.1	CLC
SBD	37	11/16/94	1421	0.41	1.6	CLC
SBD	38	11/22/94	1400	0.41	1.6	CLC
SBD	39	11/28/94	1428	0.39	1.4	CLC
SBD	40	12/04/94	1421	0.41	2.4	CLC
SBD	41	12/10/94	1423	0.42	1.8	CLC
SBD	42	12/16/94	1408	0.41	2.1	CLC
SBD	43	12/22/94	1419	0.41	1.9	CLC
SBD	44	12/28/94	1428	0.40	1.7	CLC
SBD	45	01/03/95	1437	0.42	1.9	CLC
SBD	46	01/09/95	1431	0.43	1.8	CLC
SBD	47	01/15/95	1378	0.40	1.5	CLC
SBD	53	01/21/95	1393	0.40	2.4	CLC
SBD	54	01/27/95	1413	0.42	2.1	CLC
SBD	55	02/02/95	1176	0.35	1.9	CLC
SBD	56	02/08/95	1420	0.44	1.9	CLC
SBD	57	02/14/95	1426	0.44	1.9	CLC
SBD	58	02/20/95	1430	0.41	2.0	CLC
SBD	59	02/26/95	1368	0.42	1.8	CLC
SBD	60	03/04/95	1430	0.42	2.2	CLC
SBD	61	03/10/95	1421	0.42	2.1	CLC
SBD	62	03/16/95	1433	0.40	1.5	CLC
SBD	63	03/22/95	1436	0.41	1.8	CLC
SBD	64	03/28/95	1436	0.41	2.4	CLC
SBD	65	04/03/95	1422	0.38	3.5	CLC
SBD	66	04/09/95	1393	0.40	1.8	CLC
SBD	67	04/15/95	1430	0.41	1.6	CLC
SBD	68	04/21/95	1441	0.41	2.4	CLC
SBD	69	04/27/95	1400	0.39	1.8	CLC

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m³)	Result (ng m⁻³)	ARC
SBD	70	05/03/95	1365	0.39	1.8	CLC
SBD	71	05/09/95	1419	0.41	1.5	CLC
SBD	72	05/15/95	1367	0.39	1.7	CLC
SBD	73	05/21/95	1401	0.39	1.7	CLC
SBD	74	05/27/95	1538	0.44	1.6	CLC
SBD	75	06/02/95	1419	0.39	1.9	CLC
SBD	76	06/08/95	1414	0.40	2.6	CLC
SBD	77	06/14/95	1321	0.35	1.9	CLC
SBD	78	06/20/95	1417	0.37	2.7	CLC
SBD	79	06/26/95	1424	0.38	2.0	CLC
SBD	80	07/02/95	1408	0.39	1.7	CLC
SBD	81	07/08/95	1510	0.42	1.5	CLC
SBD	82	07/14/95	1337	0.35	2.0	CLC
SBD	83	07/20/95	1410	0.38	1.8	CLC
SBD	84	07/26/95	1413	0.38	1.7	CLC
SBD	85	08/01/95	1464	0.40	1.7	CLC
SBD	86	08/07/95	1416	0.38	1.9	CLC
SBD	87	08/13/95	1436	0.38	1.9	CLC
SBD	88	08/19/95	1489	0.40	1.7	CLC
SBD	89	08/25/95	1370	0.38	1.7	CLC
SBD	90	08/31/95	1465	0.38	1.8	CLC
SBD	91	09/06/95	1440	0.39	1.5	CLC
SBD	92	09/12/95	1462	0.41	3.9	CLC
SBD	93	09/18/95	1405	0.40	1.4	CLC
SBD	94	09/24/95	1439	0.42	1.4	CLC
SBD	95	09/30/95	1475	0.40	1.6	CLC
SBD	97	10/12/95	1372	0.38	1.7	CLC
SBD	98	10/18/95	1439	0.40	1.6	CLC
SBD	99	10/24/95	1431	0.39	3.5	CLC
SBD	100	10/30/95	1437	0.41	1.4	CLC
SHN	1	06/19/94	1466	0.43	1.8	CLC
SHN	2	06/25/94	1456	0.44	1.9	CLC
SHN	3	07/01/94	1448	0.42	2.0	CLC
SHN	4	07/07/94	1463	0.43	1.9	CLC
SHN	5	07/13/94	1461	0.43	1.9	CLC
SHN	9	07/19/94	1391	0.42	1.9	CLC
SHN	18	07/25/94	1452	0.44	3.2	CLC
SHN	27	07/31/94	1405	0.42	1.9	CLC
SHN	29	08/06/94	1443	0.44	1.5	CLC
SHN	30	08/12/94	1471	0.44	1.5	CLC
SHN	31	08/18/94	1412	0.41	3.2	CLC
SHN	32	08/24/94	1387	0.41	1.9	CLC
SHN	33	08/30/94	1481	0.44	2.5	CLC
SHN	34	09/05/94	1444	0.43	2.3	CLC
SHN	35	09/11/94	1487	0.44	2.2	CLC
SHN	36	09/17/94	1407	0.42	2.3	CLC
SHN	37	09/23/94	1458	0.43	1.8	CLC

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
SHN	38	09/29/94	1430	0.43	1.6	CLC
SHN	39	10/05/94	1443	0.44	1.7	CLC
SHN	40	10/11/94	1436	0.44	1.7	CLC
SHN	41	10/17/94	1424	0.27	3.1	CLC
SHN	44	11/04/94	1360	0.33	3.9	CLC
SHN	45	11/10/94	1438	0.30	3.2	CLC
SHN	46	11/16/94	1433	0.31	2.5	CLC
SHN	47	11/22/94	1394	0.32	2.0	CLC
SHN	49	12/04/94	1449	0.38	2.3	CLC
SHN	50	12/10/94	1412	0.40	1.7	CLC
SHN	51	12/16/94	1450	0.43	2.5	CLC
SHN	52	12/22/94	1440	0.39	2.8	CLC
SHN	54	01/03/95	1451	0.42	1.9	CLC
SHN	55	01/09/95	1469	0.44	1.9	CLC
SHN	56	01/15/95	1438	0.48	1.9	CLC
SHN	62	01/21/95	1390	0.46	1.7	CLC
SHN	63	01/27/95	1475	0.48	1.9	CLC
SHN	64	02/02/95	1496	0.49	2.0	CLC
SHN	65	02/08/95	1419	0.47	1.9	CLC
SHN	66	02/14/95	1366	0.45	2.0	CLC
SHN	67	02/20/95	1402	0.45	2.2	CLC
SHN	68	02/26/95	1458	0.49	1.9	CLC
SHN	69	03/04/95	1420	0.50	2.1	CLC
SHN	70	03/10/95	1419	0.47	.	LTC
SHN	71	03/16/95	1431	0.48	6.1	GTL
SHN	72	03/22/95	1488	0.50	2.2	CLC
SHN	73	03/28/95	1433	0.48	2.2	CLC
SHN	74	04/03/95	1480	0.48	2.5	CLC
SHN	75	04/09/95	1478	0.51	1.9	CLC
SHN	76	04/15/95	1459	0.48	1.8	CLC
SHN	77	04/21/95	1445	0.48	2.2	CLC
SHN	78	04/27/95	1440	0.44	2.2	CLC
SHN	79	05/03/95	1442	0.49	2.0	CLC
SHN	80	05/09/95	1414	0.46	2.5	CLC
SHN	81	05/15/95	1466	0.46	2.2	CLC
SHN	82	05/21/95	1566	0.52	1.9	CLC
SHN	83	05/27/95	1428	0.46	2.1	CLC
SHN	84	06/02/95	1451	0.43	2.8	CLC
SHN	85	06/08/95	1452	0.41	1.7	CLC
SHN	86	06/14/95	1450	0.40	2.1	CLC
SHN	87	06/20/95	1443	0.39	2.0	CLC
SHN	88	06/26/95	1431	0.39	2.2	CLC
SHN	89	07/02/95	1464	0.41	1.6	CLC
SHN	90	07/08/95	1489	0.42	2.4	CLC
SHN	91	07/14/95	1452	0.39	3.1	CLC
SHN	92	07/20/95	1443	0.39	2.3	CLC
SHN	93	07/26/95	1451	0.39	2.4	CLC

The Lake Michigan Mass Balance Study Routine Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m³)	Result (ng m⁻³)	ARC
SHN	94	08/01/95	1460	0.40	1.8	CLC
SHN	95	08/07/95	1445	0.38	2.1	CLC
SHN	96	08/13/95	1498	0.40	3.3	CLC
SHN	97	08/19/95	1422	0.38	1.9	CLC
SHN	98	08/25/95	1424	0.39	1.7	CLC
SHN	99	08/31/95	1481	0.40	1.8	CLC
SHN	100	09/07/95	1285	0.35	1.6	CLC
SHN	101	09/12/95	1427	0.40	2.2	CLC
SHN	102	09/18/95	1448	0.41	2.1	CLC
SHN	103	09/24/95	1379	0.40	1.5	CLC
SHN	104	09/30/95	1453	0.40	1.9	CLC
SHN	105	10/06/95	1467	0.41	1.6	CLC
SHN	106	10/12/95	1426	0.39	1.8	CLC
SHN	107	10/18/95	1454	0.41	1.9	CLC
SHN	108	10/24/95	1456	0.41	1.5	CLC
SHN	109	10/30/95	1423	0.41	1.4	CLC

II.B.2. Collocated Vapor Phase Hg Samples

Collocated 12 hour vapor phase Hg samples were collected at the IIT-Chicago sampling site during the AEOLOS intensive from July 17, 1994 through August 1, 1994. Twenty nine collocated sample pairs were collected. The mean vapor phase Hg concentration was 4.5 ng m^{-3} , with a range from 1.7 ng m^{-3} to 22.9 ng m^{-3} .

TABLE 9. LMMBS Particulate Phase Hg Storage Blank ARC Summary

ARC	CLC	GTL	TOTAL
N	54	4	58
PERCENT	93.10	6.90	100.00

The Lake Michigan Mass Balance Study Co-located Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
IIT	6	07/17/94	684	0.19	2.9	CLC
IIT	6	07/17/94	682	0.19	2.7	CLC
IIT	7	07/17/94	694	0.19	4.9	CLC
IIT	7	07/17/94	692	0.19	5.0	CLC
IIT	8	07/18/94	663	0.18	2.3	CLC
IIT	8	07/18/94	663	0.18	2.4	CLC
IIT	9	07/18/94	715	0.19	3.8	CLC
IIT	9	07/18/94	715	0.19	3.9	CLC
IIT	10	07/19/94	669	0.18	2.9	CLC
IIT	10	07/19/94	669	0.18	3.0	CLC
IIT	11	07/19/94	711	0.20	2.7	CLC
IIT	11	07/19/94	711	0.19	3.1	CLC
IIT	12	07/20/94	689	0.19	2.9	CLC
IIT	12	07/20/94	689	0.18	2.9	CLC
IIT	13	07/20/94	716	0.19	2.9	CLC
IIT	13	07/20/94	715	0.19	2.8	CLC
IIT	14	07/21/94	659	0.18	5.6	CLC
IIT	14	07/21/94	659	0.18	5.5	CLC
IIT	15	07/21/94	692	0.19	3.0	CLC
IIT	15	07/21/94	692	0.19	2.7	CLC
IIT	16	07/22/94	680	0.19	2.6	CLC
IIT	16	07/22/94	680	0.19	1.7	CLC
IIT	17	07/22/94	713	0.20	3.5	CLC
IIT	17	07/22/94	713	0.20	4.2	CLC
IIT	18	07/23/94	693	0.19	2.6	CLC
IIT	18	07/23/94	693	0.19	2.9	CLC
IIT	19	07/23/94	699	0.20	4.0	CLC
IIT	19	07/23/94	699	0.20	3.6	CLC
IIT	20	07/24/94	715	0.20	2.4	CLC
IIT	20	07/24/94	715	0.20	2.5	CLC
IIT	21	07/24/94	689	0.20	4.0	CLC
IIT	21	07/24/94	689	0.19	3.5	CLC
IIT	22	07/25/94	689	0.18	2.7	CLC
IIT	22	07/25/94	689	0.18	2.7	CLC
IIT	23	07/25/94	697	0.19	4.6	CLC
IIT	23	07/25/94	697	0.19	4.2	CLC
IIT	24	07/26/94	666	0.18	3.0	CLC
IIT	24	07/26/94	666	0.18	2.7	CLC
IIT	25	07/26/94	667	0.18	2.4	CLC
IIT	25	07/26/94	667	0.18	2.3	CLC
IIT	26	07/27/94	679	0.18	3.0	CLC
IIT	26	07/27/94	679	0.18	2.8	CLC
IIT	27	07/27/94	710	0.19	3.1	CLC
IIT	27	07/27/94	710	0.19	3.6	CLC
IIT	28	07/28/94	697	0.19	2.6	CLC
IIT	28	07/28/94	697	0.19	2.1	CLC
IIT	29	07/28/94	703	0.19	5.1	CLC

The Lake Michigan Mass Balance Study Co-located Vapor Phase Hg Samples

Site	Sample	Sample Date	Duration (min)	Air Volume (m³)	Result (ng m⁻³)	ARC
IIT	29	07/28/94	703	0.19	4.6	CLC
IIT	30	07/29/94	686	0.19	2.9	CLC
IIT	30	07/29/94	686	0.19	2.6	CLC
IIT	31	07/29/94	717	0.20	4.3	CLC
IIT	31	07/29/94	717	0.20	4.1	CLC
IIT	33	07/30/94	694	0.19	3.2	CLC
IIT	33	07/30/94	694	0.19	3.2	CLC
IIT	34	07/31/94	694	0.19	21.2	GTL
IIT	34	07/31/94	694	0.19	16.4	GTL
IIT	35	07/31/94	716	0.20	22.9	GTL
IIT	35	07/31/94	716	0.20	21.9	GTL

II.B.3. Vapor Phase Hg Field Blanks

Vapor phase field blanks were collected on 25% of the LMMBS scheduled sampling days at each site. The field blanks were taken to quantify the contamination due to handling and setup of the sample traps. The results of the vapor phase Hg field blanks are summarized below in Table 10. There was not a statistically significant difference ($\alpha=0.05$) in the field blank values by site. A uniform field blank correction value of 18 pg was, therefore, applied to all the sites.

TABLE 10. LMMBS Vapor Phase Hg Field Blank Summary

SITE	N	MEAN (pg/trap)
Bondville	19	9
Chiwaukee Prairie	20	16
IIT-Chicago	20	17
Sleeping Bear Dunes	21	23
South Haven	22	22
All	102	18

The analytic remark code summary for the vapor phase Hg field blanks are presented below in Table 11. Most of the vapor phase Hg field blanks (94%) were below detection limit. Samples with an FFR analytic remark code were not used for blank correction.

TABLE 11. LMMBS Vapor Phase Hg Field Blank ARC Summary

ARC	BDL	CLC	FFR	TOTAL
N	96	5	1	102
PERCENT	94.12	4.90	0.98	100.00

The Lake Michigan Mass Balance Study Vapor Phase Hg Field Blanks

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
BON	3	07/25/94	2	0.00	0.0	BDL
BON	5	07/31/94	2	0.00	0.0	BDL
BON	6	08/24/94	2	0.00	0.0	BDL
BON	7	09/17/94	2	0.00	0.0	BDL
BON	9	11/04/94	2	0.00	0.0	BDL
BON	10	11/28/94	2	0.00	0.0	BDL
BON	11	12/16/94	2	0.00	0.0	BDL
BON	12	01/15/95	2	0.00	0.0	BDL
BON	14	02/02/95	2	0.00	0.0	BDL
BON	15	02/26/95	2	0.00	0.0	BDL
BON	16	03/22/95	2	0.00	0.0	BDL
BON	17	04/15/95	2	0.00	0.0	BDL
BON	18	05/09/95	2	0.00	0.0	BDL
BON	19	06/02/95	2	0.00	0.0	BDL
BON	20	07/20/95	2	0.00	0.0	BDL
BON	21	08/25/95	2	0.00	0.0	BDL
BON	22	09/06/95	2	0.00	0.0	BDL
BON	23	09/30/95	2	0.00	0.0	BDL
BON	24	10/24/95	2	0.00	0.0	BDL
CWP	5	07/31/94	2	0.00	0.0	BDL
CWP	6	08/24/94	2	0.00	0.0	BDL
CWP	7	09/18/94	2	0.00	0.1	BDL
CWP	8	10/11/94	2	0.00	0.0	BDL
CWP	10	11/04/94	2	0.00	0.1	CLC
CWP	11	11/28/94	2	0.00	0.0	BDL
CWP	12	12/16/94	2	0.00	0.0	BDL
CWP	13	01/15/95	2	0.00	0.0	BDL
CWP	15	02/02/95	2	0.00	0.0	BDL
CWP	16	02/26/95	2	0.00	0.0	BDL
CWP	17	03/22/95	2	0.00	0.0	BDL
CWP	18	04/15/95	2	0.00	0.0	BDL
CWP	19	05/09/95	2	0.00	0.0	BDL
CWP	20	06/02/95	2	0.00	0.0	BDL
CWP	21	06/26/95	2	0.00	0.0	BDL
CWP	22	07/20/95	2	0.00	0.1	BDL
CWP	23	08/25/95	2	0.00	0.0	BDL
CWP	24	09/06/95	2	0.00	0.0	BDL
CWP	25	09/30/95	2	0.00	0.0	BDL
CWP	26	10/24/95	2	0.00	0.0	BDL
IIT	1	07/07/94	2	0.00	0.0	BDL
IIT	2	07/19/94	2	0.00	0.0	BDL
IIT	7	08/26/94	2	0.00	0.0	BDL
IIT	8	09/25/94	2	0.00	0.1	CLC
IIT	9	10/11/94	2	0.00	0.0	BDL
IIT	11	11/28/94	2	0.00	0.0	BDL
IIT	12	12/17/94	2	0.00	0.0	BDL
IIT	13	01/15/95	2	0.00	0.0	BDL

The Lake Michigan Mass Balance Study Vapor Phase Hg Field Blanks

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
IIT	15	02/03/95	2	0.00	0.0	BDL
IIT	16	03/04/95	2	0.00	0.0	BDL
IIT	17	04/04/95	2	0.00	0.0	BDL
IIT	18	04/16/95	2	0.00	0.0	BDL
IIT	19	05/10/95	2	0.00	0.0	BDL
IIT	20	06/03/95	2	0.00	0.0	BDL
IIT	21	06/26/95	2	0.00	0.0	BDL
IIT	22	07/21/95	2	0.00	0.0	BDL
IIT	23	08/26/95	2	0.00	0.0	BDL
IIT	24	09/06/95	2	0.00	0.0	BDL
IIT	25	09/30/95	2	0.00	0.0	BDL
IIT	26	10/25/95	2	0.00	0.0	BDL
SBD	1	07/06/94	2	0.00	0.0	BDL
SBD	4	07/25/94	2	0.00	0.1	CLC
SBD	6	07/31/94	2	0.00	13.0	FFR
SBD	7	08/25/94	2	0.00	0.0	BDL
SBD	8	09/17/94	2	0.00	0.0	BDL
SBD	9	10/18/94	2	0.00	0.0	BDL
SBD	10	11/04/94	2	0.00	0.1	BDL
SBD	11	11/29/94	2	0.00	0.0	BDL
SBD	12	12/17/94	2	0.00	0.2	CLC
SBD	13	01/15/95	2	0.00	0.0	BDL
SBD	15	02/03/95	2	0.00	0.0	BDL
SBD	16	02/26/95	2	0.00	0.0	BDL
SBD	17	03/23/95	2	0.00	0.0	BDL
SBD	18	04/16/95	2	0.00	0.0	BDL
SBD	19	05/09/95	2	0.00	0.0	BDL
SBD	20	06/02/95	2	0.00	0.0	BDL
SBD	21	06/26/95	2	0.00	0.0	BDL
SBD	22	07/21/95	2	0.00	0.0	BDL
SBD	23	08/25/95	2	0.00	0.0	BDL
SBD	24	09/07/95	2	0.00	0.0	BDL
SBD	25	10/01/95	2	0.00	0.0	BDL
SBD	26	10/25/95	2	0.00	0.0	BDL
SHN	3	07/25/94	2	0.00	0.1	CLC
SHN	5	07/31/94	2	0.00	0.0	BDL
SHN	6	08/24/94	2	0.00	0.0	BDL
SHN	7	09/17/94	2	0.00	0.0	BDL
SHN	8	10/12/94	2	0.00	0.0	BDL
SHN	9	10/29/94	2	0.00	0.1	BDL
SHN	10	12/10/94	2	0.00	0.0	BDL
SHN	11	12/22/94	2	0.00	0.0	BDL
SHN	12	01/15/95	2	0.00	0.0	BDL
SHN	14	02/03/95	2	0.00	0.0	BDL
SHN	15	02/26/95	2	0.00	0.0	BDL
SHN	16	03/22/95	2	0.00	0.0	BDL
SHN	17	04/15/95	2	0.00	0.0	BDL

The Lake Michigan Mass Balance Study Vapor Phase Hg Field Blanks

Site	Sample	Sample Date	Duration (min)	Air Volume (m³)	Result (ng m⁻³)	ARC
SHN	18	05/09/95	2	0.00	0.0	BDL
SHN	19	06/02/95	2	0.00	0.0	BDL
SHN	20	06/26/95	2	0.00	0.0	BDL
SHN	21	07/20/95	2	0.00	0.0	BDL
SHN	22	08/25/95	2	0.00	0.0	BDL
SHN	23	09/07/95	2	0.00	0.0	BDL
SHN	24	09/30/95	2	0.00	0.0	BDL
SHN	25	10/24/95	2	0.00	0.0	BDL
SHN	99	07/08/94	2	0.00	0.0	BDL

II.B.4. Vapor Phase Hg Storage Blanks

Vapor phase storage blanks were collected on 10% of the LMMBS scheduled sampling days at each site. The Storage blanks were collected to quantify the contamination due to shipping and storage of the sample traps. The results of vapor phase Hg storage blanks (excluding one sample flagged FFR) are summarized below in Table 12.

TABLE 12. LMMBS Vapor Phase Hg Storage Blank Summary

SITE	N	MEAN (pg/trap)
Bondville	8	32
Chiwaukee Prairie	8	14
IIT-Chicago	9	14
Sleeping Bear Dunes	10	55
South Haven	9	19
All	44	27

The analytic remark code summary for the vapor phase Hg storage blanks are presented below in Table 13. Most of the vapor phase storage blanks (93%) were below detection limit.

TABLE 13. LMMBS Vapor Phase Hg Storage Blank ARC Summary

ARC	BDL	CLC	FFR	TOTAL
N	42	2	1	45
PERCENT	93.34	4.44	2.22	100.00

The Lake Michigan Mass Balance Study Vapor Phase Hg Storage Blanks

Site	Sample	Sample Date	Duration (min)	Air Volume (m ³)	Result (ng m ⁻³)	ARC
BON	1	07/07/94	0	0.00	0.0	BDL
BON	3	08/30/94	0	0.00	0.2	CLC
BON	4	09/05/94	0	0.00	0.0	BDL
BON	8	03/16/95	0	0.00	0.0	BDL
BON	9	05/15/95	0	0.00	0.0	BDL
BON	10	07/14/95	0	0.00	0.0	BDL
BON	11	08/19/95	0	0.00	0.0	BDL
BON	12	10/30/95	0	0.00	0.0	BDL
CWP	2	08/30/94	0	0.00	0.0	BDL
CWP	3	09/05/94	0	0.00	0.0	BDL
CWP	4	10/17/94	0	0.00	0.0	BDL
CWP	5	12/22/94	0	0.00	0.0	BDL
CWP	7	03/16/95	0	0.00	0.0	BDL
CWP	8	07/14/95	0	0.00	0.0	BDL
CWP	9	08/19/95	0	0.00	0.0	BDL
CWP	10	10/30/95	0	0.00	0.0	BDL
IIT	1	06/25/94	0	0.00	0.0	BDL
IIT	3	08/31/94	0	0.00	1.7	FFR
IIT	4	09/11/94	0	0.00	0.0	BDL
IIT	5	10/18/94	0	0.00	0.0	BDL
IIT	6	12/22/94	0	0.00	0.0	BDL
IIT	8	03/16/95	0	0.00	0.0	BDL
IIT	9	05/16/95	0	0.00	0.0	BDL
IIT	10	07/14/95	0	0.00	0.0	BDL
IIT	11	08/21/95	0	0.00	0.0	BDL
IIT	12	10/30/95	0	0.00	0.0	BDL
SBD	1	06/25/94	0	0.00	0.0	BDL
SBD	3	08/30/94	0	0.00	0.1	BDL
SBD	4	09/05/94	0	0.00	0.0	BDL
SBD	5	10/17/94	0	0.00	0.0	BDL
SBD	6	12/23/94	0	0.00	0.0	BDL
SBD	9	03/15/95	0	0.00	0.4	CLC
SBD	10	05/15/95	0	0.00	0.0	BDL
SBD	11	07/14/95	0	0.00	0.0	BDL
SBD	12	08/20/95	0	0.00	0.0	BDL
SBD	13	10/30/95	0	0.00	0.0	BDL
SHN	2	08/24/94	0	0.00	0.0	BDL
SHN	3	09/06/94	0	0.00	0.0	BDL
SHN	4	10/17/94	0	0.00	0.0	BDL
SHN	5	12/28/94	0	0.00	0.0	BDL
SHN	7	03/16/95	0	0.00	0.0	BDL
SHN	8	05/15/95	0	0.00	0.0	BDL
SHN	9	07/14/95	0	0.00	0.0	BDL
SHN	10	08/19/95	0	0.00	0.0	BDL
SHN	11	10/30/95	0	0.00	0.0	BDL

II.C. Mercury in Precipitation

II.C.1. Routine Hg in Precipitation Samples

Precipitation samples were collected for Hg determination from July 1, 1994 through October 31, 1995 for the LMMBS using UMAQL modified MIC-B automatic precipitation collectors. Samples were collected on an event basis from April through October and on a weekly basis from November through March. Site operators visited their respective site every morning at 8:00 am local time during event collection and every Tuesday morning at 8:00 am local time during weekly sampling. During event collection, a sample was collected if there was any precipitation within the last 24 hours. If it was raining while they were at the site, they were instructed to leave the sample in the collector and retrieve the sample the following morning. During weekly collection, the sample was collected every Tuesday regardless of precipitation.

The results of the Hg in precipitation samples with a collected volume > 20 milliliters are summarized below in Table 14. The reported Hg concentrations were not bottle blank or acid blank corrected since the average mass contributed by the sum of the blanks were <1% of the average sample mass. The mean bottle blank (n=65) was 0.029 ng and the mean acid preservative blank (n=162) was 0.004 ng.

TABLE 14. LMMBS Hg in Precipitation Summary

Site	N	VWA ^a (ng L ⁻¹)	Range (ng L ⁻¹)	Deposition (μg m ⁻²)
Bondville	81	16.1	5.3 – 137.0	17.1
Chiwaukee Prairie	76	16.3	4.5 – 133.8	18.3
IIT-Chicago	75	21.1	5.4 – 74.6	30.3
Sleeping Bear Dunes	100	11.3	2.1 – 63.7	16.2
South Haven	86	14.2	3.2 – 110.4	18.3

^a Volume Weighted Average Concentration

Analytical remark code frequencies for the Hg in precipitation samples are summarized below in Table 15. Three samples were bottle blank corrected and flagged (BCC) after one bottle batch was found to have a relatively large bottle blank. Three samples were flagged with the FFD analytic remark code because collocated samples were >25% different. Although 13 LMMBS Hg in precipitation samples were flagged GTL, all samples were well within the linear range of the CVAFS instrument and are considered by the UMAQL to be valid.

TABLE 15. LMMBS Hg in Precipitation ARC Frequencies

ARC	BCC	CLC	FFD	GTL	TOTAL
N	3	387	3	13	406
PERCENT	0.74	95.32	0.74	3.20	100.00

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m ²)	ARC
06/26/94	BON	1	1	11.0	.	1.31	0.144	CLC
07/02/94	BON	3	1	29.8	.	0.36	0.106	CLC
07/03/94	BON	4	1	21.3	.	0.31	0.066	CLC
07/17/94	BON	6	1	17.3	.	0.36	0.062	CLC
07/19/94	BON	7	1	29.0	.	0.71	0.205	CLC
07/20/94	BON	8	2	13.7	1	1.93	0.264	CLC
08/02/94	BON	11	1	33.1	.	0.13	0.044	CLC
08/03/94	BON	12	1	10.5	.	2.30	0.241	CLC
08/07/94	BON	13	2	29.3	6	0.76	0.223	CLC
08/08/94	BON	14	2	29.3	4	0.81	0.238	CLC
08/11/94	BON	15	1	44.4	.	0.12	0.054	CLC
08/13/94	BON	17	2	15.6	3	1.15	0.180	CLC
08/19/94	BON	18	1	46.1	.	0.46	0.210	CLC
08/20/94	BON	19	1	16.3	.	0.45	0.073	CLC
08/26/94	BON	20	1	18.7	.	0.32	0.059	CLC
08/28/94	BON	21	2	7.7	3	2.37	0.182	CLC
09/04/94	BON	22	2	26.8	4	1.20	0.321	CLC
09/16/94	BON	23	1	13.5	.	1.85	0.250	CLC
09/22/94	BON	24	1	31.6	.	0.72	0.228	GTL
09/23/94	BON	25	2	7.8	6	1.01	0.079	CLC
10/24/94	BON	30	1	24.6	.	0.21	0.053	CLC
10/24/94	BON	31	1	13.2	.	0.27	0.036	CLC
10/31/94	BON	32	1	18.4	.	2.17	0.398	GTL
11/04/94	BON	33	2	9.2	5	4.78	0.441	CLC
11/14/94	BON	34	1	7.8	.	1.02	0.080	CLC
11/21/94	BON	36	1	11.1	.	1.96	0.217	CLC
11/27/94	BON	37	2	15.2	1	0.95	0.145	CLC
12/03/94	BON	38	2	15.5	1	2.03	0.316	CLC
12/09/94	BON	39	1	5.8	.	0.27	0.016	CLC
12/16/94	BON	40	1	5.3	.	1.60	0.085	CLC
12/31/94	BON	41	2	11.2	3	0.48	0.054	CLC
01/06/95	BON	42	1	12.8	.	0.13	0.016	CLC
01/14/95	BON	43	2	20.5	1	3.65	0.748	CLC
01/19/95	BON	44	2	17.1	4	1.25	0.214	CLC
02/07/95	BON	45	1	5.5	.	0.55	0.030	CLC
02/27/95	BON	47	1	11.8	.	0.41	0.048	CLC
03/06/95	BON	48	1	6.8	.	4.81	0.327	CLC
03/20/95	BON	49	1	16.4	.	0.50	0.082	CLC
03/27/95	BON	50	2	33.7	3	1.63	0.550	CLC
04/04/95	BON	51	1	12.4	.	0.48	0.059	CLC
04/08/95	BON	52	2	52.2	5	0.27	0.140	CLC
04/09/95	BON	53	1	18.6	.	0.33	0.061	CLC
04/11/95	BON	55	1	9.3	.	2.03	0.188	CLC
04/17/95	BON	57	2	15.4	3	1.24	0.191	CLC
04/18/95	BON	58	2	22.3	3	2.97	0.663	CLC
04/23/95	BON	59	1	12.2	.	0.49	0.060	CLC
04/27/95	BON	60	1	23.1	.	0.38	0.089	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
04/29/95	BON	61	2	15.6	2	0.74	0.116	CLC
05/04/95	BON	62	1	40.7	.	0.13	0.054	CLC
05/08/95	BON	63	1	60.7	.	0.19	0.113	CLC
05/09/95	BON	64	1	11.7	.	5.24	0.616	CLC
05/10/95	BON	65	1	11.6	.	0.47	0.055	CLC
05/13/95	BON	66	2	15.5	4	1.54	0.239	CLC
05/13/95	BON	67	1	8.3	.	1.48	0.123	CLC
05/16/95	BON	68	2	29.8	0	0.69	0.206	CLC
05/24/95	BON	69	1	11.7	.	5.28	0.619	CLC
05/24/95	BON	70	1	17.2	.	0.74	0.128	CLC
05/28/95	BON	71	1	11.9	.	1.84	0.219	CLC
06/06/95	BON	73	2	23.8	7	0.83	0.197	CLC
06/06/95	BON	73	2	25.1	2	0.84	0.212	CLC
06/08/95	BON	74	1	51.7	.	0.20	0.105	FFD
06/08/95	BON	74	1	66.9	.	0.26	0.172	FFD
06/10/95	BON	75	2	9.6	10	2.09	0.200	CLC
06/10/95	BON	75	2	8.4	0	2.28	0.191	CLC
06/20/95	BON	76	2	42.0	10	1.42	0.596	CLC
06/20/95	BON	76	2	41.0	7	1.49	0.609	CLC
06/29/95	BON	77	2	34.0	3	0.63	0.212	CLC
06/29/95	BON	77	2	38.9	2	0.57	0.222	CLC
07/04/95	BON	78	2	15.0	2	0.54	0.081	CLC
07/04/95	BON	78	2	12.5	2	0.55	0.069	CLC
07/06/95	BON	79	1	34.6	.	0.11	0.038	CLC
07/20/95	BON	81	2	20.4	6	0.58	0.118	CLC
07/20/95	BON	81	2	21.0	4	0.58	0.121	CLC
07/22/95	BON	82	2	26.8	2	0.32	0.085	CLC
07/22/95	BON	82	2	28.7	9	0.27	0.079	CLC
07/23/95	BON	83	2	13.7	5	1.96	0.267	CLC
07/23/95	BON	83	2	14.5	0	1.19	0.173	CLC
07/25/95	BON	84	2	15.9	2	1.96	0.311	CLC
07/25/95	BON	84	2	14.5	2	2.00	0.290	CLC
07/28/95	BON	85	2	137.0	8	0.18	0.240	CLC
08/04/95	BON	86	2	11.5	4	2.37	0.272	CLC
08/04/95	BON	86	2	11.1	1	2.10	0.233	CLC
08/07/95	BON	87	2	13.8	4	3.54	0.487	CLC
08/09/95	BON	88	1	32.8	.	0.36	0.117	CLC
08/19/95	BON	89	1	24.5	.	1.61	0.395	CLC
09/07/95	BON	92	2	10.4	2	0.77	0.081	CLC
09/07/95	BON	92	2	9.8	8	1.29	0.126	CLC
09/19/95	BON	93	2	31.6	4	0.29	0.092	CLC
09/19/95	BON	93	1	34.4	.	0.22	0.076	CLC
09/21/95	BON	94	2	8.6	2	0.74	0.064	CLC
09/21/95	BON	94	2	6.8	5	0.83	0.057	CLC
10/06/95	BON	96	2	21.0	7	0.82	0.173	CLC
10/06/95	BON	96	2	21.2	5	0.82	0.173	CLC
10/13/95	BON	97	2	47.8	2	0.34	0.162	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
10/19/95	BON	98	2	10.3	4	1.85	0.191	CLC
10/19/95	BON	98	3	9.4	8	1.95	0.183	CLC
10/26/95	BON	99	2	26.6	7	1.69	0.450	CLC
10/26/95	BON	99	2	23.8	2	1.84	0.437	CLC
07/19/94	CWP	1	2	30.6	2	1.12	0.344	CLC
07/20/94	CWP	2	1	19.9	.	0.14	0.028	CLC
07/21/94	CWP	3	1	63.1	.	0.16	0.104	BCC
08/01/94	CWP	4	2	33.7	3	0.16	0.055	CLC
08/03/94	CWP	5	2	5.3	7	2.24	0.117	CLC
08/10/94	CWP	6	2	14.8	2	5.36	0.795	CLC
08/12/94	CWP	7	1	40.3	.	1.59	0.639	CLC
08/18/94	CWP	8	1	23.3	.	0.42	0.097	CLC
08/19/94	CWP	9	1	48.8	.	0.86	0.420	CLC
08/27/94	CWP	11	1	46.8	.	0.23	0.105	CLC
09/09/94	CWP	15	2	26.5	5	1.04	0.274	CLC
09/22/94	CWP	18	1	23.7	.	0.31	0.073	CLC
09/26/94	CWP	19	1	17.2	.	1.86	0.319	CLC
10/09/94	CWP	21	1	14.4	.	1.77	0.255	CLC
10/16/94	CWP	22	1	35.9	.	0.44	0.159	GTL
10/31/94	CWP	24	2	6.3	7	5.27	0.333	CLC
11/03/94	CWP	25	2	9.7	8	3.25	0.317	CLC
11/05/94	CWP	26	2	5.3	10	4.88	0.259	CLC
11/08/94	CWP	27	1	17.1	.	1.40	0.240	CLC
11/14/94	CWP	28	1	12.3	.	0.21	0.026	CLC
11/20/94	CWP	29	1	27.7	.	0.15	0.043	CLC
12/05/94	CWP	31	1	19.1	.	0.27	0.051	CLC
12/13/94	CWP	32	2	4.5	4	1.85	0.083	CLC
12/20/94	CWP	33	2	33.8	3	0.27	0.091	CLC
01/03/95	CWP	35	1	7.2	.	0.22	0.016	CLC
01/10/95	CWP	36	2	7.2	7	0.35	0.025	CLC
01/17/95	CWP	37	2	9.3	3	4.10	0.382	CLC
01/24/95	CWP	38	1	9.6	.	0.40	0.038	CLC
02/21/95	CWP	42	2	18.8	8	0.16	0.031	CLC
02/28/95	CWP	43	1	23.2	.	0.25	0.059	CLC
03/07/95	CWP	44	1	11.0	.	0.95	0.104	CLC
03/21/95	CWP	46	2	28.8	17	1.01	0.292	CLC
03/28/95	CWP	47	2	21.5	5	2.29	0.491	CLC
04/04/95	CWP	48	1	36.7	.	0.23	0.085	CLC
04/07/95	CWP	49	1	16.1	.	1.96	0.316	CLC
04/12/95	CWP	50	1	10.8	.	3.16	0.343	CLC
04/18/95	CWP	51	2	23.7	1	2.35	0.557	CLC
04/21/95	CWP	52	1	19.7	.	0.29	0.056	CLC
04/24/95	CWP	53	1	22.3	.	0.27	0.061	CLC
04/26/95	CWP	54	2	7.7	0	5.52	0.424	CLC
04/27/95	CWP	55	1	6.0	.	0.43	0.026	CLC
05/04/95	CWP	56	1	22.8	.	0.26	0.060	CLC
05/08/95	CWP	57	2	24.6	3	2.89	0.712	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
05/10/95	CWP	58	2	19.9	5	1.20	0.239	CLC
05/13/95	CWP	59	1	32.8	.	0.41	0.135	CLC
05/16/95	CWP	60	1	19.4	.	0.19	0.037	CLC
05/23/95	CWP	61	2	11.1	9	2.52	0.280	CLC
05/28/95	CWP	62	2	20.8	5	2.05	0.425	CLC
06/06/95	CWP	63	1	67.1	.	0.24	0.162	GTL
06/07/95	CWP	64	1	42.1	.	0.15	0.062	CLC
06/27/95	CWP	67	3	24.0	8	0.86	0.205	CLC
06/29/95	CWP	68	2	15.3	4	0.97	0.148	FFD
06/29/95	CWP	68	2	29.2	3	0.95	0.278	FFD
07/04/95	CWP	69	2	6.1	3	3.72	0.227	CLC
07/04/95	CWP	69	2	5.8	3	3.70	0.216	CLC
07/14/95	CWP	70	1	133.8	.	0.12	0.161	CLC
07/15/95	CWP	71	1	33.1	.	1.18	0.392	CLC
07/19/95	CWP	72	2	30.9	1	0.49	0.153	CLC
07/19/95	CWP	72	2	31.9	7	0.51	0.163	CLC
07/22/95	CWP	73	2	17.2	3	0.88	0.152	CLC
07/22/95	CWP	73	2	18.2	8	1.01	0.183	CLC
07/25/95	CWP	74	2	36.2	1	1.16	0.419	CLC
07/31/95	CWP	75	2	24.7	2	2.92	0.722	CLC
07/31/95	CWP	75	2	25.5	1	2.73	0.695	CLC
08/04/95	CWP	76	1	30.6	.	0.49	0.151	CLC
08/10/95	CWP	77	2	27.0	8	3.01	0.811	CLC
08/17/95	CWP	78	2	18.3	5	3.27	0.598	CLC
08/19/95	CWP	79	1	20.1	.	4.55	0.913	CLC
08/28/95	CWP	81	2	20.0	8	2.87	0.575	CLC
09/07/95	CWP	83	2	5.9	7	0.99	0.058	CLC
09/20/95	CWP	85	1	19.5	.	1.85	0.361	CLC
09/21/95	CWP	86	1	9.2	.	0.13	0.012	CLC
09/29/95	CWP	87	1	31.8	.	0.43	0.136	CLC
10/06/95	CWP	88	2	8.4	1	2.76	0.233	CLC
10/06/95	CWP	88	2	8.4	14	2.90	0.243	CLC
10/14/95	CWP	89	2	18.6	1	0.55	0.103	CLC
10/14/95	CWP	89	2	19.4	8	0.64	0.124	CLC
10/19/95	CWP	90	3	7.9	5	4.86	0.382	CLC
10/19/95	CWP	90	1	8.5	.	4.66	0.398	CLC
10/23/95	CWP	91	2	14.5	6	0.35	0.051	CLC
10/23/95	CWP	91	2	14.2	2	0.32	0.045	CLC
10/27/95	CWP	92	1	11.8	.	0.16	0.019	CLC
10/27/95	CWP	92	1	10.2	.	0.18	0.018	CLC
10/31/95	CWP	93	2	12.9	0	1.75	0.225	CLC
10/31/95	CWP	93	2	11.8	0	1.78	0.211	CLC
06/11/94	IIT	1	2	43.6	3	0.70	0.304	CLC
06/12/94	IIT	2	2	38.1	5	0.33	0.125	CLC
06/14/94	IIT	3	3	13.3	6	1.08	0.143	CLC
06/23/94	IIT	5	2	11.7	9	5.38	0.631	CLC
07/07/94	IIT	8	2	37.6	3	1.99	0.748	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
07/12/94	IIT	11	2	15.8	6	1.23	0.195	CLC
07/16/94	IIT	12	1	43.0	.	0.11	0.047	CLC
07/18/94	IIT	13	2	19.5	2	1.54	0.300	CLC
07/19/94	IIT	14	1	37.9	.	0.12	0.046	CLC
07/20/94	IIT	15	2	39.8	3	0.82	0.328	CLC
07/21/94	IIT	16	1	14.8	.	2.16	0.319	CLC
08/01/94	IIT	17	2	39.4	0	1.65	0.650	CLC
08/08/94	IIT	18	1	53.8	.	0.51	0.274	GTL
08/11/94	IIT	19	1	36.2	.	1.77	0.641	CLC
08/13/94	IIT	20	2	19.7	2	3.11	0.614	CLC
08/18/94	IIT	21	2	36.9	2	0.67	0.247	BCC
08/19/94	IIT	22	2	25.3	6	1.15	0.291	BCC
08/20/94	IIT	23	1	11.0	.	0.63	0.069	CLC
08/30/94	IIT	26	2	33.0	3	2.99	0.987	CLC
09/05/94	IIT	28	2	20.7	5	0.44	0.091	CLC
09/25/94	IIT	32	1	26.3	.	0.43	0.112	CLC
10/09/94	IIT	33	2	12.4	3	3.08	0.382	CLC
10/22/94	IIT	35	1	29.3	.	0.15	0.045	CLC
10/31/94	IIT	36	2	7.2	2	5.30	0.380	CLC
11/05/94	IIT	37	2	18.4	4	3.60	0.663	GTL
11/09/94	IIT	38	2	19.4	2	1.12	0.217	CLC
11/21/94	IIT	39	1	17.1	.	0.91	0.155	CLC
11/27/94	IIT	40	1	10.6	.	1.86	0.197	CLC
12/06/94	IIT	41	3	60.2	3	0.93	0.561	CLC
12/17/94	IIT	43	2	17.4	5	0.79	0.137	CLC
01/01/95	IIT	45	1	15.9	.	0.35	0.056	CLC
01/19/95	IIT	46	1	10.5	.	1.96	0.207	CLC
01/28/95	IIT	47	1	5.4	.	0.42	0.023	CLC
02/26/95	IIT	51	2	8.1	3	1.76	0.142	CLC
03/07/95	IIT	52	2	12.6	0	1.79	0.226	CLC
03/20/95	IIT	54	2	36.8	10	0.95	0.351	CLC
03/27/95	IIT	55	1	20.1	.	1.14	0.230	CLC
04/03/95	IIT	56	1	40.5	.	0.15	0.060	CLC
04/09/95	IIT	57	1	14.6	.	3.87	0.564	CLC
04/15/95	IIT	58	2	10.2	4	1.62	0.165	CLC
04/21/95	IIT	59	2	30.8	3	1.44	0.443	GTL
04/26/95	IIT	60	2	21.5	7	3.53	0.759	CLC
04/27/95	IIT	61	1	11.9	.	0.18	0.022	CLC
04/30/95	IIT	62	1	16.6	.	0.90	0.150	CLC
05/04/95	IIT	63	1	38.9	.	0.19	0.073	CLC
05/10/95	IIT	64	2	41.4	1	1.57	0.649	CLC
05/14/95	IIT	65	1	19.0	.	0.27	0.051	CLC
05/18/95	IIT	66	1	26.3	.	1.40	0.369	GTL
05/24/95	IIT	67	1	11.3	.	4.75	0.536	CLC
05/25/95	IIT	68	1	15.6	.	0.70	0.109	CLC
05/27/95	IIT	69	2	19.4	10	1.16	0.225	CLC
06/02/95	IIT	70	2	21.9	9	0.80	0.175	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m ²)	ARC
06/06/95	IIT	71	2	74.6	3	0.45	0.335	CLC
06/11/95	IIT	72	1	35.3	.	0.16	0.056	CLC
06/28/95	IIT	73	2	21.5	4	1.50	0.322	CLC
06/30/95	IIT	74	1	33.2	.	0.16	0.053	CLC
07/05/95	IIT	75	2	12.2	7	1.50	0.183	CLC
07/08/95	IIT	76	2	72.7	5	0.29	0.207	CLC
07/20/95	IIT	77	1	12.2	.	3.87	0.472	CLC
07/27/95	IIT	78	2	35.6	7	1.01	0.361	CLC
08/03/95	IIT	79	2	22.2	2	3.60	0.797	CLC
08/13/95	IIT	80	1	48.5	.	0.71	0.343	CLC
08/16/95	IIT	81	1	13.9	.	5.57	0.775	CLC
08/19/95	IIT	82	1	18.9	.	2.08	0.392	CLC
08/28/95	IIT	83	1	67.0	.	0.46	0.305	CLC
09/07/95	IIT	84	1	10.6	.	0.82	0.087	CLC
09/19/95	IIT	85	3	38.0	9	1.59	0.605	CLC
10/03/95	IIT	86	2	44.2	3	5.10	2.256	CLC
10/05/95	IIT	87	1	14.5	.	1.36	0.197	CLC
10/13/95	IIT	89	1	27.4	.	0.41	0.113	CLC
10/20/95	IIT	90	1	13.8	.	4.32	0.596	CLC
10/24/95	IIT	91	1	24.9	.	0.59	0.147	CLC
10/27/95	IIT	92	1	14.1	.	1.44	0.203	CLC
10/30/95	IIT	93	2	15.3	1	3.54	0.540	CLC
06/23/94	SBD	1	2	33.1	1	0.13	0.042	CLC
06/24/94	SBD	2	2	25.5	2	0.82	0.210	CLC
06/28/94	SBD	3	2	21.2	2	0.74	0.156	CLC
06/29/94	SBD	4	2	8.0	5	0.70	0.056	CLC
07/04/94	SBD	5	2	7.4	1	3.78	0.279	CLC
07/06/94	SBD	6	1	37.7	.	0.12	0.045	CLC
07/07/94	SBD	7	2	16.2	0	2.56	0.413	CLC
07/14/94	SBD	9	1	19.6	.	0.25	0.049	CLC
07/17/94	SBD	10	2	8.7	1	0.41	0.036	CLC
07/20/94	SBD	12	1	6.9	.	2.20	0.152	CLC
07/21/94	SBD	13	2	12.5	1	2.63	0.328	CLC
07/22/94	SBD	14	1	10.5	.	0.70	0.073	CLC
08/13/94	SBD	17	2	6.4	6	0.77	0.049	CLC
08/19/94	SBD	19	1	28.5	.	0.43	0.122	CLC
08/20/94	SBD	20	1	17.1	.	0.53	0.091	CLC
08/26/94	SBD	21	2	25.3	5	0.38	0.097	CLC
08/27/94	SBD	22	2	49.7	0	0.32	0.161	CLC
08/30/94	SBD	23	1	9.9	.	3.41	0.337	CLC
09/05/94	SBD	24	1	9.0	.	0.26	0.024	CLC
09/13/94	SBD	25	1	13.9	.	1.61	0.223	CLC
09/15/94	SBD	26	2	16.3	2	4.89	0.796	CLC
09/22/94	SBD	27	1	18.9	.	0.67	0.126	CLC
09/26/94	SBD	28	1	9.5	.	2.63	0.250	CLC
09/29/94	SBD	29	1	4.9	.	2.57	0.126	CLC
10/01/94	SBD	30	2	14.5	7	1.57	0.228	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
10/10/94	SBD	31	1	6.4	.	1.40	0.090	CLC
10/22/94	SBD	32	2	9.4	1	0.76	0.071	CLC
10/25/94	SBD	33	1	5.3	.	1.33	0.070	CLC
11/05/94	SBD	34	1	16.3	.	0.17	0.028	CLC
11/06/94	SBD	35	1	2.5	.	2.28	0.057	CLC
11/14/94	SBD	37	1	11.0	.	1.25	0.137	CLC
11/21/94	SBD	38	2	11.9	1	1.54	0.184	GTL
11/29/94	SBD	39	1	7.2	.	0.99	0.071	CLC
12/20/94	SBD	42	1	9.8	.	0.66	0.064	CLC
01/03/95	SBD	44	2	7.6	11	0.52	0.040	CLC
01/10/95	SBD	45	1	9.7	.	0.56	0.054	CLC
01/17/95	SBD	46	2	4.7	5	2.50	0.117	CLC
01/27/95	SBD	48	2	5.4	3	1.29	0.069	CLC
02/07/95	SBD	50	1	4.2	.	0.50	0.021	CLC
02/14/95	SBD	51	2	4.8	8	0.55	0.026	CLC
02/21/95	SBD	52	1	13.7	.	0.18	0.024	CLC
03/07/95	SBD	54	1	3.9	.	1.09	0.042	CLC
03/21/95	SBD	56	1	14.8	.	2.41	0.356	GTL
04/04/95	SBD	58	1	27.4	.	0.12	0.032	CLC
04/05/95	SBD	59	1	6.7	.	0.36	0.024	CLC
04/07/95	SBD	60	1	3.3	.	0.20	0.007	CLC
04/11/95	SBD	61	2	19.8	5	0.61	0.120	CLC
04/13/95	SBD	62	1	14.3	.	0.18	0.026	CLC
04/18/95	SBD	63	2	16.0	4	1.71	0.272	CLC
04/21/95	SBD	64	1	7.0	.	0.32	0.023	CLC
04/24/95	SBD	65	1	10.2	.	0.19	0.019	CLC
04/25/95	SBD	66	1	28.5	.	0.35	0.099	CLC
04/27/95	SBD	67	2	2.3	1	2.28	0.051	CLC
05/05/95	SBD	68	1	11.1	.	0.22	0.024	CLC
05/09/95	SBD	69	2	33.4	1	1.27	0.423	CLC
05/13/95	SBD	70	1	12.7	.	3.91	0.496	CLC
05/16/95	SBD	71	1	47.1	.	0.26	0.121	CLC
05/23/95	SBD	72	1	15.4	.	1.46	0.226	CLC
05/27/95	SBD	73	2	46.6	1	0.41	0.189	CLC
05/28/95	SBD	74	1	9.4	.	0.78	0.073	CLC
05/29/95	SBD	75	1	18.7	.	0.27	0.051	CLC
06/10/95	SBD	77	2	20.4	1	0.37	0.075	FFD
06/10/95	SBD	77	2	15.9	8	0.37	0.059	FFD
06/26/95	SBD	80	1	8.3	.	1.05	0.087	CLC
06/26/95	SBD	80	2	7.7	7	1.09	0.084	CLC
06/27/95	SBD	81	2	13.6	3	0.67	0.091	CLC
06/27/95	SBD	81	2	14.2	3	0.65	0.092	CLC
06/28/95	SBD	82	2	7.2	6	2.63	0.190	CLC
06/28/95	SBD	82	2	7.0	2	2.68	0.187	CLC
06/30/95	SBD	83	1	4.1	.	0.99	0.040	CLC
07/06/95	SBD	84	1	10.9	.	3.20	0.348	CLC
07/08/95	SBD	85	1	29.6	.	0.14	0.041	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
07/13/95	SBD	86	1	63.7	.	0.30	0.192	CLC
07/16/95	SBD	87	1	26.6	.	0.29	0.076	CLC
07/22/95	SBD	89	1	9.5	.	2.26	0.215	CLC
07/27/95	SBD	90	1	34.0	.	0.19	0.063	CLC
07/31/95	SBD	91	1	20.0	.	3.45	0.690	CLC
08/03/95	SBD	92	1	6.6	.	2.53	0.168	CLC
08/04/95	SBD	93	2	8.4	3	2.59	0.217	CLC
08/11/95	SBD	94	1	8.8	.	2.80	0.246	CLC
08/12/95	SBD	95	1	30.7	.	1.02	0.313	CLC
08/14/95	SBD	96	2	16.9	7	1.96	0.331	CLC
08/16/95	SBD	97	2	4.0	5	5.44	0.218	CLC
08/31/95	SBD	98	1	40.8	.	0.13	0.051	CLC
09/02/95	SBD	99	1	33.2	.	0.20	0.067	CLC
09/06/95	SBD	100	1	13.3	.	0.65	0.087	CLC
09/13/95	SBD	101	1	18.1	.	0.81	0.147	CLC
09/16/95	SBD	102	1	13.3	.	0.32	0.042	CLC
09/19/95	SBD	103	2	10.4	6	1.27	0.132	CLC
09/21/95	SBD	104	2	3.4	7	1.84	0.063	CLC
09/22/95	SBD	105	1	6.2	.	1.06	0.066	CLC
09/25/95	SBD	106	1	23.9	.	0.19	0.045	CLC
10/03/95	SBD	107	2	18.7	7	0.65	0.122	CLC
10/06/95	SBD	108	2	2.1	1	2.16	0.045	CLC
10/14/95	SBD	109	1	5.1	.	1.10	0.056	CLC
10/14/95	SBD	109	1	5.1	.	1.06	0.054	CLC
10/19/95	SBD	110	1	5.7	.	5.48	0.315	CLC
10/23/95	SBD	111	1	32.6	.	0.27	0.088	CLC
10/24/95	SBD	112	1	3.8	.	0.26	0.010	CLC
10/26/95	SBD	113	2	6.4	0	2.67	0.172	CLC
10/28/95	SBD	114	1	2.8	.	0.20	0.005	CLC
10/29/95	SBD	115	1	4.4	.	0.41	0.018	CLC
07/05/94	SHA	220	1	20.3	.	3.20	0.651	CLC
07/06/94	SHA	221	2	14.4	4	1.27	0.183	CLC
07/07/94	SHA	222	1	13.4	.	3.30	0.443	CLC
07/12/94	SHA	223	1	22.0	.	0.13	0.028	CLC
07/08/94	SHA	224	2	10.6	1	0.51	0.054	CLC
07/17/94	SHN	1	1	25.0	.	0.13	0.033	CLC
07/20/94	SHN	2	2	21.9	0	0.97	0.212	CLC
07/21/94	SHN	3	1	12.9	.	0.37	0.048	CLC
07/27/94	SHN	5	1	35.6	.	0.23	0.080	CLC
08/01/94	SHN	6	2	20.1	2	0.92	0.185	CLC
08/03/94	SHN	7	2	12.2	9	1.28	0.156	CLC
08/04/94	SHN	8	1	5.4	.	2.39	0.130	CLC
08/08/94	SHN	9	1	5.4	.	0.74	0.040	CLC
08/10/94	SHN	10	1	14.9	.	3.53	0.527	CLC
08/12/94	SHN	11	1	15.1	.	3.25	0.490	CLC
08/13/94	SHN	12	1	6.9	.	2.25	0.156	CLC
08/20/94	SHN	13	2	30.8	3	0.77	0.237	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
08/30/94	SHN	14	1	28.2	.	0.72	0.204	CLC
09/10/94	SHN	15	2	28.6	0	2.19	0.628	CLC
09/24/94	SHN	16	2	10.1	3	1.37	0.138	CLC
09/25/94	SHN	17	1	35.3	.	0.19	0.066	GTL
09/27/94	SHN	18	1	4.9	.	2.38	0.115	CLC
09/28/94	SHN	19	1	16.9	.	0.53	0.090	CLC
09/29/94	SHN	20	1	6.3	.	0.35	0.022	CLC
10/01/94	SHN	21	1	30.6	.	0.25	0.077	CLC
10/11/94	SHN	23	2	6.4	3	1.86	0.120	CLC
10/19/94	SHN	24	2	13.8	5	0.58	0.080	CLC
10/31/94	SHN	25	1	7.9	.	5.08	0.401	CLC
11/06/94	SHN	26	1	9.0	.	5.27	0.477	CLC
11/14/94	SHN	27	1	15.5	.	1.60	0.248	CLC
11/21/94	SHN	28	1	13.6	.	0.66	0.089	CLC
11/27/94	SHN	29	1	4.0	.	2.05	0.082	CLC
12/02/94	SHN	30	2	63.6	1	0.33	0.209	CLC
12/06/94	SHN	31	2	4.2	8	2.79	0.118	CLC
12/15/94	SHN	32	1	17.9	.	1.22	0.218	CLC
12/31/94	SHN	34	1	8.6	.	0.57	0.048	CLC
01/07/95	SHN	35	2	11.5	5	0.39	0.045	CLC
01/13/95	SHN	36	2	10.5	4	3.57	0.375	CLC
01/19/95	SHN	37	1	15.6	.	1.34	0.208	CLC
02/05/95	SHN	40	1	7.7	.	0.25	0.019	CLC
02/27/95	SHN	43	2	4.6	5	1.54	0.071	CLC
03/06/95	SHN	44	2	8.3	0	1.91	0.159	CLC
03/19/95	SHN	46	1	33.5	.	0.50	0.169	CLC
03/27/95	SHN	47	2	8.8	3	1.48	0.130	CLC
04/03/95	SHN	48	2	46.9	7	0.74	0.345	CLC
04/09/95	SHN	49	1	12.0	.	1.85	0.222	CLC
04/11/95	SHN	50	1	13.7	.	2.00	0.274	CLC
04/18/95	SHN	51	1	31.7	.	1.20	0.381	GTL
04/21/95	SHN	52	2	8.9	6	1.72	0.153	CLC
04/27/95	SHN	53	2	16.4	3	4.44	0.727	CLC
04/30/95	SHN	54	1	16.9	.	0.49	0.083	CLC
05/05/95	SHN	55	2	10.4	2	0.83	0.086	CLC
05/10/95	SHN	56	2	34.4	3	0.93	0.321	CLC
05/11/95	SHN	57	1	18.5	.	0.32	0.060	CLC
05/16/95	SHN	58	1	27.6	.	0.39	0.108	CLC
05/23/95	SHN	59	2	3.2	6	2.91	0.093	CLC
05/25/95	SHN	60	2	24.4	4	0.86	0.210	CLC
05/29/95	SHN	61	1	25.3	.	0.50	0.128	CLC
06/03/95	SHN	62	2	13.0	0	1.42	0.184	CLC
06/08/95	SHN	63	1	15.2	.	1.34	0.204	CLC
06/26/95	SHN	64	2	11.8	5	1.11	0.130	CLC
06/27/95	SHN	65	1	11.0	.	0.88	0.097	CLC
06/29/95	SHN	66	1	16.4	.	0.87	0.143	CLC
07/04/95	SHN	67	1	7.5	.	0.98	0.073	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
07/06/95	SHN	68	1	110.4	.	0.19	0.206	GTL
07/16/95	SHN	69	1	14.8	.	1.11	0.165	CLC
07/20/95	SHN	70	1	15.0	.	1.25	0.188	CLC
07/22/95	SHN	71	1	24.9	.	0.87	0.217	CLC
07/28/95	SHN	72	1	20.1	.	2.65	0.533	CLC
08/09/95	SHN	73	1	24.6	.	1.88	0.462	CLC
08/16/95	SHN	74	1	24.6	.	2.69	0.662	CLC
08/18/95	SHN	75	1	19.7	.	0.54	0.106	CLC
09/03/95	SHN	76	2	14.6	6	1.85	0.269	CLC
09/07/95	SHN	77	2	6.1	11	1.39	0.085	CLC
09/16/95	SHN	78	2	10.8	1	1.92	0.209	CLC
09/21/95	SHN	79	2	15.2	0	1.79	0.272	CLC
10/05/95	SHN	80	1	36.0	.	1.06	0.381	CLC
10/06/95	SHN	81	1	16.1	.	1.03	0.165	CLC
10/14/95	SHN	82	1	23.4	.	0.53	0.125	CLC
10/20/95	SHN	83	1	4.8	.	5.51	0.263	CLC
10/27/95	SHN	84	2	9.0	2	2.43	0.219	CLC

II.C.2. Collocated Hg in Precipitation Samples

Collocated event precipitation samples for Hg determination were collected at the Bondville, Chiwaukee Prairie and Sleeping Bear Dunes sampling sites. Thirty four collocated sample pairs were collected. The mean absolute difference was 9.8% ($0.8 \text{ ng L}^{-1} \pm 3.9 \text{ ng L}^{-1}$). The analytic remark code frequency table for the collocated Hg in precipitation samples are presented below in Table 16. Three samples were flagged with the FFD analytic remark code because collocated samples were >25% different.

TABLE 16. LMMBS Collocated Hg in Precipitation ARC Summary

ARC	CLC	FFD	TOTAL
N	31	3	34
PERCENT	91.18	8.82	100.00

The Lake Michigan Mass Balance Study Co-located Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m ²)	ARC
06/06/95	BON	73	2	23.8	7	0.83	0.197	CLC
06/06/95	BON	73	2	25.1	2	0.84	0.212	CLC
06/08/95	BON	74	1	51.7	.	0.20	0.105	FFD
06/08/95	BON	74	1	66.9	.	0.26	0.172	FFD
06/10/95	BON	75	2	8.4	0	2.28	0.191	CLC
06/10/95	BON	75	2	9.6	10	2.09	0.200	CLC
06/20/95	BON	76	2	42.0	10	1.42	0.596	CLC
06/20/95	BON	76	2	41.0	7	1.49	0.609	CLC
06/29/95	BON	77	2	34.0	3	0.63	0.212	CLC
06/29/95	BON	77	2	38.9	2	0.57	0.222	CLC
07/04/95	BON	78	2	15.0	2	0.54	0.081	CLC
07/04/95	BON	78	2	12.5	2	0.55	0.069	CLC
07/20/95	BON	81	2	21.0	4	0.58	0.121	CLC
07/20/95	BON	81	2	20.4	6	0.58	0.118	CLC
07/22/95	BON	82	2	26.8	2	0.32	0.085	CLC
07/22/95	BON	82	2	28.7	9	0.27	0.079	CLC
07/23/95	BON	83	2	13.7	5	1.96	0.267	CLC
07/23/95	BON	83	2	14.5	0	1.19	0.173	CLC
07/25/95	BON	84	2	15.9	2	1.96	0.311	CLC
07/25/95	BON	84	2	14.5	2	2.00	0.290	CLC
08/04/95	BON	86	2	11.5	4	2.37	0.272	CLC
08/04/95	BON	86	2	11.1	1	2.10	0.233	CLC
09/07/95	BON	92	2	10.4	2	0.77	0.081	CLC
09/07/95	BON	92	2	9.8	8	1.29	0.126	CLC
09/19/95	BON	93	2	31.6	4	0.29	0.092	CLC
09/19/95	BON	93	1	34.4	.	0.22	0.076	CLC
09/21/95	BON	94	2	8.6	2	0.74	0.064	CLC
09/21/95	BON	94	2	6.8	5	0.83	0.057	CLC
10/06/95	BON	96	2	21.0	7	0.82	0.173	CLC
10/06/95	BON	96	2	21.2	5	0.82	0.173	CLC
10/19/95	BON	98	3	9.4	8	1.95	0.183	CLC
10/19/95	BON	98	2	10.3	4	1.85	0.191	CLC
10/26/95	BON	99	2	26.6	7	1.69	0.450	CLC
10/26/95	BON	99	2	23.8	2	1.84	0.437	CLC
06/29/95	CWP	68	2	15.3	4	0.97	0.148	FFD
06/29/95	CWP	68	2	29.2	3	0.95	0.278	FFD
07/04/95	CWP	69	2	6.1	3	3.72	0.227	CLC
07/04/95	CWP	69	2	5.8	3	3.70	0.216	CLC
07/19/95	CWP	72	2	31.9	7	0.51	0.163	CLC
07/19/95	CWP	72	2	30.9	1	0.49	0.153	CLC
07/22/95	CWP	73	2	17.2	3	0.88	0.152	CLC
07/22/95	CWP	73	2	18.2	8	1.01	0.183	CLC
07/31/95	CWP	75	2	24.7	2	2.92	0.722	CLC
07/31/95	CWP	75	2	25.5	1	2.73	0.695	CLC
10/06/95	CWP	88	2	8.4	1	2.76	0.233	CLC
10/06/95	CWP	88	2	8.4	14	2.90	0.243	CLC

The Lake Michigan Mass Balance Study Co-located Hg in Precipitation Samples

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	Precip. Depth (cm)	Deposition (ug/m2)	ARC
10/14/95	CWP	89	2	18.6	1	0.55	0.103	CLC
10/14/95	CWP	89	2	19.4	8	0.64	0.124	CLC
10/19/95	CWP	90	3	7.9	5	4.86	0.382	CLC
10/19/95	CWP	90	1	8.5	.	4.66	0.398	CLC
10/23/95	CWP	91	2	14.5	6	0.35	0.051	CLC
10/23/95	CWP	91	2	14.2	2	0.32	0.045	CLC
10/27/95	CWP	92	1	11.8	.	0.16	0.019	CLC
10/27/95	CWP	92	1	10.2	.	0.18	0.018	CLC
10/31/95	CWP	93	2	12.9	0	1.75	0.225	CLC
10/31/95	CWP	93	2	11.8	0	1.78	0.211	CLC
06/10/95	SBD	77	2	20.4	1	0.37	0.075	FFD
06/10/95	SBD	77	2	15.9	8	0.37	0.059	FFD
06/26/95	SBD	80	1	8.3	.	1.05	0.087	CLC
06/26/95	SBD	80	2	7.7	7	1.09	0.084	CLC
06/27/95	SBD	81	2	13.6	3	0.67	0.091	CLC
06/27/95	SBD	81	2	14.2	3	0.65	0.092	CLC
06/28/95	SBD	82	2	7.2	6	2.63	0.190	CLC
06/28/95	SBD	82	2	7.0	2	2.68	0.187	CLC
10/14/95	SBD	109	1	5.1	.	1.10	0.056	CLC
10/14/95	SBD	109	1	5.1	.	1.06	0.054	CLC

II.C.3. Precipitation Collection Funnel Rinses

Funnel rinses were performed to confirm the Hg collection funnel assemblies were free of contamination. Funnel rinse samples were collected at each of the five sites when no precipitation sample was collected for seven successive calendar days. The analytic remark code frequency table for the precipitation funnel rinses are presented below in Table 17.

TABLE 17. LMMBS Precipitation Collection Funnel Rinse ARC Summary

ARC	BDL	CLC	FFR	TOTAL
N	19	17	1	37
PERCENT	51.35	45.95	2.70	100.00

The Lake Michigan Mass Balance Study Precipitation Collector Funnel Rinses

Sample Date	Site	Sample	N	Result (ng L ⁻¹)	CV	ARC
06/28/94	BON	1	2	0.0	.	CLC
07/29/94	BON	3	2	0.1	3	CLC
08/12/94	BON	5	1	0.0	.	CLC
08/29/94	BON	6	2	4.1	3	FFR
08/30/94	BON	8	2	0.1	10	CLC
10/04/94	BON	10	2	0.0	.	CLC
11/08/94	BON	11	1	0.0	.	BDL
11/29/94	BON	13	2	0.0	5	BDL
07/14/95	BON	16	2	0.0	.	BDL
07/14/95	BON	16	2	0.9	4	CLC
07/26/94	CWP	1	2	0.4	6	CLC
08/30/94	CWP	2	1	0.0	.	CLC
09/29/94	CWP	3	1	0.0	.	CLC
11/04/94	CWP	4	1	0.1	.	BDL
11/22/94	CWP	5	1	0.0	.	BDL
06/15/95	CWP	6	2	1.1	7	CLC
06/22/95	CWP	7	1	0.0	.	BDL
08/12/94	CWP	99	2	0.0	.	CLC
07/31/94	IIT	2	1	0.0	.	CLC
08/30/94	IIT	3	1	0.0	.	CLC
09/28/94	IIT	5	2	0.0	.	CLC
10/14/94	IIT	6	2	0.0	.	BDL
11/08/94	IIT	7	1	0.0	.	BDL
01/22/95	IIT	8	2	0.0	.	BDL
03/21/95	IIT	9	1	0.0	.	BDL
05/15/95	IIT	10	1	0.0	.	BDL
06/20/95	IIT	11	1	0.0	.	BDL
10/30/95	IIT	12	1	0.1	.	CLC
09/06/94	SBD	1	2	0.0	.	CLC
11/12/94	SBD	2	2	0.1	9	BDL
03/28/95	SBD	3	1	0.0	.	BDL
06/05/95	SBD	4	2	0.0	.	BDL
06/18/95	SBD	5	2	0.0	7	BDL
09/29/94	SHN	3	1	0.0	.	CLC
11/07/94	SHN	5	2	0.0	.	BDL
05/01/95	SHN	6	1	0.0	.	BDL
06/01/95	SHN	8	2	0.0	.	BDL
10/26/95	SHN	9	1	0.1	.	CLC

III. Measurement Quality Objectives for Mercury Analysis

It is our belief that the majority of uncertainties associated with the determination of Hg in atmospheric samples can be alleviated by strict adherence to comprehensive standard operating procedures (SOPs). To that end, the UMAQL developed and implemented a series of SOPs for field collection and analysis of Hg in particulate phase, vapor phase, and precipitation samples. The complete UMAQL SOPs can be found in the Lake Michigan Mass Balance Study Methods Compendium (EPA 905-R-97-012a & EPA 905-R-97-012b). The UMAQL was committed to providing EPA with atmospheric Hg data with total measurement uncertainties well within the range prescribed by the Quality Assurance Project Plan Data Quality Objective. The following section will present the result of each measurement quality objective and discuss its implication to the LMMBS data base.

III.A. Precision

III.A.1. Hg Field Duplicate Samples

Collocated Hg samples were collected during the LMMBS to determine total precision. Particulate phase Hg and Vapor Phase Hg samples were collected at the IIT-Chicago site and collocated Hg in precipitation samples were collected at the Bondville, Chiwaukee Prairie, and Sleeping Bear Dunes sites. The results of the collocated Hg sampling are presented below in Table 18. The mean relative percent difference (RPD) for each of the media was <10% indicating extremely good agreement between the collocated sample pairs. Only 3 of the 93 collocated samples had a RPD > 25% and needed to be flagged FFD.

TABLE 18. LMMBS Collocated Hg sampling Precision

Media	N	Mean Conc.	Mean Diff.	Mean RPD	Standard Error
Particulate Phase	31	67 pg m ⁻³	2 pg m ⁻³	9.1 %	1.0 %
Vapor Phase	29	4.3 ng m ⁻³	0.3 ng m ⁻³	9.2 %	1.5 %
Precipitation	33	21.9 ng L ⁻¹	0.8 ng L ⁻¹	9.8 %	2.0 %

III.A.2. Laboratory Duplicate Samples

Laboratory duplicate analysis was conducted during the LMMBS to determine analytical precision. Particulate phase Hg and Hg in precipitation samples were replicated on a routine basis, however, vapor phase Hg analysis was a destructive technique that precluded replicate analysis. The results of the laboratory duplicate samples is presented in Table 19. The UMAQL had excellent analytical precision during the LMMBS. Particulate phase Hg and Hg in precipitation had RPD's of 3.0 and 4.1 respectively. All 599 laboratory replicates were within the DQO criteria of 20 %.

TABLE 19. LMMBS UMAQL Laboratory Duplicate Precision

Media	N	Replicated	Mean RPD
Particulate Phase	391	85.4%	3.0 ± 2.6 %
Precipitation	208	47.3%	4.1 ± 2.9 %

III.B. Accuracy

Since no acceptable NIST certified reference material was commercially available our Hg applications, accuracy at the UMAQL is evaluated based upon (i) performance standards, (ii) method inter-comparisons, and (iii) laboratory inter-comparisons.

III.B.1. Particulate Phase Hg Performance Standards

A standard curve, generated by bubbling five different filter standard solutions, was analyzed before each day of analysis. The concentration of the filter standard solution aliquots for the calibration curve were tailored to the expected value of the samples analyzed. A typical calibration curve consisted of five filter standards: 0 ng, 0.1 ng, 0.2 ng, 0.5 ng and 1.0 ng. After each of the standards for the calibration curve was analyzed, a linear regression was calculated to establish the coefficient of determination (r^2), the slope of the line, and how well the slope of the curve predicted each of the points in the calibration curve. The 0 ng standard area was subtracted from each of the other points which were then regressed against the expected values using no intercept (line was forced through zero). The r^2 was required to be >0.999 and each of the points on the curve had to be predicted by the slope within 10% of their true value.

Performance standards were analyzed after every sixth sample. The performance standards were chosen to be representative of the samples being analyzed. The integrated area from each of the performance standards had to be within 10% of the slope of the calibration curve in order to continue analyzing. If this was not the case, a second control was analyzed immediately. If the second control indicated that analyzer sensitivity had changed a second calibration curve was generated and sample analysis continued. The mean absolute percent difference of the performance standards ($n=220$) was 4.3 ± 3.1 .

The analytic remark code summary for the particulate phase Hg performance standards are presented below in Table 20. An analyzer problem was encountered on May 3, 1995 and on June 6, 1995 that resulted in a significant sensitivity drop. All performance standards flagged with BDL and FPC were associated with analysis done on those two days. Most samples were reanalyzed, however, 7 sample aliquots were used up and the observed values were adjusted (flagged CAJ) using the performance standards flagged FPC.

TABLE 20. LMMBS Particulate Phase Hg Performance Standard ARC Summary

ARC	BDL	CLC	FPC	GTL	TOTAL
N	1	220	7	1	229
PERCENT	0.44	96.07	3.05	0.44	100.00

The Lake Michigan Mass Balance Study Particulate Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL0.1	02/16/95	4.8	%	RPD	CLC
AQCTL0.2	10/07/94	-6.4	%	RPD	CLC
AQCTL0.5	10/07/94	-1.2	%	RPD	CLC
AQCTL0.5	02/16/95	5.2	%	RPD	CLC
AQCTL0.5	02/16/95	1.1	%	RPD	CLC
AQCTL0.5	02/16/95	4.0	%	RPD	CLC
AQCTL0.5	02/16/95	-5.6	%	RPD	CLC
AQCTL0.5	02/17/95	-2.4	%	RPD	CLC
AQCTL0.5	02/17/95	-2.4	%	RPD	CLC
AQCTL0.5	02/17/95	-3.8	%	RPD	CLC
AQCTL0.5	02/17/95	-1.7	%	RPD	CLC
AQCTL0.5	02/17/95	0.4	%	RPD	CLC
AQCTL0.5	02/17/95	-13.3	%	RPD	CLC
AQCTL0.5	02/17/95	-6.8	%	RPD	CLC
AQCTL0.5	02/17/95	0.8	%	RPD	CLC
AQCTL0.5	02/17/95	-4.8	%	RPD	CLC
AQCTL0.5	02/17/95	-10.6	%	RPD	CLC
AQCTL0.5	02/17/95	-7.8	%	RPD	CLC
AQCTL0.5	02/17/95	0.5	%	RPD	CLC
AQCTL0.5	02/17/95	2.1	%	RPD	CLC
AQCTL0.5	02/17/95	6.3	%	RPD	CLC
AQCTL0.5	02/17/95	2.6	%	RPD	CLC
FLTCTL0.1	09/20/94	1.2	%	RPD	CLC
FLTCTL0.1	09/26/94	-9.5	%	RPD	CLC
FLTCTL0.1	10/07/94	5.5	%	RPD	CLC
FLTCTL0.1	10/14/94	1.1	%	RPD	CLC
FLTCTL0.1	10/14/94	-8.3	%	RPD	CLC
FLTCTL0.1	10/19/94	-2.6	%	RPD	CLC
FLTCTL0.1	10/21/94	1.6	%	RPD	CLC
FLTCTL0.1	10/30/94	-2.8	%	RPD	CLC
FLTCTL0.1	11/01/94	-4.2	%	RPD	CLC
FLTCTL0.1	11/01/94	-1.5	%	RPD	CLC
FLTCTL0.1	11/04/94	-7.9	%	RPD	CLC
FLTCTL0.1	11/04/94	-5.3	%	RPD	CLC
FLTCTL0.1	03/23/95	-1.1	%	RPD	CLC
FLTCTL0.1	03/31/95	-7.5	%	RPD	CLC
FLTCTL0.1	04/23/95	2.6	%	RPD	CLC
FLTCTL0.1	05/03/95	-45.7	%	RPD	BDL
FLTCTL0.1	05/03/95	-49.8	%	RPD	FPC
FLTCTL0.1	07/03/96	8.7	%	RPD	CLC
FLTCTL0.1	07/15/96	-1.6	%	RPD	CLC
FLTCTL0.1	07/15/96	0.2	%	RPD	CLC
FLTCTL0.1	08/14/96	-4.8	%	RPD	CLC
FLTCTL0.1	08/21/96	-10.9	%	RPD	CLC
FLTCTL0.1	09/03/96	3.2	%	RPD	CLC
FLTCTL0.1	09/16/96	-11.3	%	RPD	CLC
FLTCTL0.1	01/07/97	3.3	%	RPD	CLC

The Lake Michigan Mass Balance Study Particulate Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
FLTCTL0.1	02/01/97	-9.9	%	RPD	CLC
FLTCTL0.2	09/20/94	4.4	%	RPD	CLC
FLTCTL0.2	09/20/94	8.0	%	RPD	CLC
FLTCTL0.2	09/26/94	0.5	%	RPD	CLC
FLTCTL0.2	10/14/94	4.2	%	RPD	CLC
FLTCTL0.2	10/14/94	0.5	%	RPD	CLC
FLTCTL0.2	10/19/94	2.4	%	RPD	CLC
FLTCTL0.2	10/19/94	5.7	%	RPD	CLC
FLTCTL0.2	10/21/94	5.5	%	RPD	CLC
FLTCTL0.2	10/21/94	-12.2	%	RPD	CLC
FLTCTL0.2	10/30/94	-7.3	%	RPD	CLC
FLTCTL0.2	10/30/94	-0.2	%	RPD	CLC
FLTCTL0.2	11/01/94	-8.9	%	RPD	CLC
FLTCTL0.2	11/04/94	-3.9	%	RPD	CLC
FLTCTL0.2	11/04/94	-2.8	%	RPD	CLC
FLTCTL0.2	03/31/95	-10.8	%	RPD	CLC
FLTCTL0.2	04/14/95	-7.9	%	RPD	CLC
FLTCTL0.2	04/14/95	-5.8	%	RPD	CLC
FLTCTL0.2	04/14/95	-3.7	%	RPD	CLC
FLTCTL0.2	04/23/95	7.6	%	RPD	CLC
FLTCTL0.2	04/23/95	7.2	%	RPD	CLC
FLTCTL0.2	05/03/95	-27.6	%	RPD	FPC
FLTCTL0.2	05/03/95	-31.7	%	RPD	FPC
FLTCTL0.2	05/29/95	-4.3	%	RPD	CLC
FLTCTL0.2	06/06/95	-28.7	%	RPD	FPC
FLTCTL0.2	06/27/96	-3.3	%	RPD	CLC
FLTCTL0.2	06/27/96	-10.7	%	RPD	CLC
FLTCTL0.2	07/03/96	10.6	%	RPD	CLC
FLTCTL0.2	07/09/96	-4.1	%	RPD	CLC
FLTCTL0.2	07/09/96	-8.2	%	RPD	CLC
FLTCTL0.2	08/14/96	-2.8	%	RPD	CLC
FLTCTL0.2	08/14/96	-3.7	%	RPD	CLC
FLTCTL0.2	08/21/96	-6.0	%	RPD	CLC
FLTCTL0.2	08/21/96	-9.1	%	RPD	CLC
FLTCTL0.2	08/26/96	-4.3	%	RPD	CLC
FLTCTL0.2	08/26/96	-6.8	%	RPD	CLC
FLTCTL0.2	09/03/96	-9.6	%	RPD	CLC
FLTCTL0.2	09/16/96	5.8	%	RPD	CLC
FLTCTL0.2	09/16/96	5.7	%	RPD	CLC
FLTCTL0.2	09/25/96	-0.8	%	RPD	CLC
FLTCTL0.2	09/25/96	-3.3	%	RPD	CLC
FLTCTL0.2	09/30/96	-4.9	%	RPD	CLC
FLTCTL0.2	10/09/96	-6.7	%	RPD	CLC
FLTCTL0.2	10/14/96	-2.6	%	RPD	CLC
FLTCTL0.2	10/14/96	-6.2	%	RPD	CLC
FLTCTL0.2	10/25/96	-1.1	%	RPD	CLC
FLTCTL0.2	10/28/96	4.4	%	RPD	CLC

The Lake Michigan Mass Balance Study Particulate Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
FLTCTL0.2	11/04/96	-6.7	%	RPD	CLC
FLTCTL0.2	11/11/96	0.2	%	RPD	CLC
FLTCTL0.2	11/11/96	-2.8	%	RPD	CLC
FLTCTL0.2	11/18/96	-4.6	%	RPD	CLC
FLTCTL0.2	11/25/96	-2.7	%	RPD	CLC
FLTCTL0.2	12/02/96	2.1	%	RPD	CLC
FLTCTL0.2	12/02/96	-9.8	%	RPD	CLC
FLTCTL0.2	12/08/96	-5.9	%	RPD	CLC
FLTCTL0.2	01/07/97	-3.9	%	RPD	CLC
FLTCTL0.2	01/07/97	-0.4	%	RPD	CLC
FLTCTL0.2	01/07/97	-3.1	%	RPD	CLC
FLTCTL0.2	01/13/97	-2.9	%	RPD	CLC
FLTCTL0.2	01/13/97	-2.5	%	RPD	CLC
FLTCTL0.2	01/20/97	5.0	%	RPD	CLC
FLTCTL0.25	07/15/96	-6.5	%	RPD	CLC
FLTCTL0.5	09/20/94	-1.0	%	RPD	CLC
FLTCTL0.5	09/20/94	4.8	%	RPD	CLC
FLTCTL0.5	09/26/94	3.2	%	RPD	CLC
FLTCTL0.5	09/26/94	2.3	%	RPD	CLC
FLTCTL0.5	10/19/94	5.4	%	RPD	CLC
FLTCTL0.5	11/01/94	-3.8	%	RPD	CLC
FLTCTL0.5	11/04/94	-2.2	%	RPD	CLC
FLTCTL0.5	11/04/94	0.0	%	RPD	CLC
FLTCTL0.5	11/14/94	-1.2	%	RPD	CLC
FLTCTL0.5	11/14/94	4.6	%	RPD	CLC
FLTCTL0.5	11/14/94	8.8	%	RPD	CLC
FLTCTL0.5	11/14/94	9.9	%	RPD	CLC
FLTCTL0.5	03/23/95	-5.6	%	RPD	CLC
FLTCTL0.5	03/23/95	-5.2	%	RPD	CLC
FLTCTL0.5	03/31/95	-1.9	%	RPD	CLC
FLTCTL0.5	03/31/95	-12.7	%	RPD	CLC
FLTCTL0.5	04/14/95	-10.1	%	RPD	CLC
FLTCTL0.5	05/03/95	-38.4	%	RPD	FPC
FLTCTL0.5	06/06/95	-29.1	%	RPD	FPC
FLTCTL0.5	06/22/95	-7.8	%	RPD	CLC
FLTCTL0.5	06/27/96	-3.7	%	RPD	CLC
FLTCTL0.5	07/03/96	1.0	%	RPD	CLC
FLTCTL0.5	07/03/96	2.1	%	RPD	CLC
FLTCTL0.5	07/03/96	3.7	%	RPD	CLC
FLTCTL0.5	07/09/96	2.1	%	RPD	CLC
FLTCTL0.5	07/09/96	2.0	%	RPD	CLC
FLTCTL0.5	07/09/96	0.8	%	RPD	CLC
FLTCTL0.5	07/15/96	1.1	%	RPD	CLC
FLTCTL0.5	07/15/96	5.7	%	RPD	CLC
FLTCTL0.5	08/14/96	6.8	%	RPD	CLC
FLTCTL0.5	08/14/96	-5.4	%	RPD	CLC
FLTCTL0.5	08/21/96	-6.8	%	RPD	CLC

The Lake Michigan Mass Balance Study Particulate Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
FLTCTL0.5	08/21/96	-7.0	%	RPD	CLC
FLTCTL0.5	08/26/96	-2.5	%	RPD	CLC
FLTCTL0.5	08/26/96	-4.5	%	RPD	CLC
FLTCTL0.5	09/03/96	-5.5	%	RPD	CLC
FLTCTL0.5	09/03/96	-5.8	%	RPD	CLC
FLTCTL0.5	09/16/96	-1.4	%	RPD	CLC
FLTCTL0.5	09/25/96	-3.9	%	RPD	CLC
FLTCTL0.5	09/25/96	-7.3	%	RPD	CLC
FLTCTL0.5	10/09/96	-6.7	%	RPD	CLC
FLTCTL0.5	10/14/96	-1.6	%	RPD	CLC
FLTCTL0.5	10/25/96	1.2	%	RPD	CLC
FLTCTL0.5	10/25/96	-1.7	%	RPD	CLC
FLTCTL0.5	10/28/96	-0.3	%	RPD	CLC
FLTCTL0.5	11/04/96	-0.5	%	RPD	CLC
FLTCTL0.5	11/04/96	-3.7	%	RPD	CLC
FLTCTL0.5	11/11/96	-2.3	%	RPD	CLC
FLTCTL0.5	11/11/96	-9.1	%	RPD	CLC
FLTCTL0.5	11/18/96	0.1	%	RPD	CLC
FLTCTL0.5	11/18/96	-2.0	%	RPD	CLC
FLTCTL0.5	11/25/96	-4.2	%	RPD	CLC
FLTCTL0.5	11/25/96	-4.6	%	RPD	CLC
FLTCTL0.5	12/02/96	-2.7	%	RPD	CLC
FLTCTL0.5	12/02/96	-2.8	%	RPD	CLC
FLTCTL0.5	12/08/96	-1.5	%	RPD	CLC
FLTCTL0.5	12/17/96	-0.6	%	RPD	CLC
FLTCTL0.5	12/17/96	-0.7	%	RPD	CLC
FLTCTL0.5	01/07/97	-3.6	%	RPD	CLC
FLTCTL0.5	01/07/97	3.1	%	RPD	CLC
FLTCTL0.5	01/07/97	-3.9	%	RPD	CLC
FLTCTL0.5	01/07/97	-4.4	%	RPD	CLC
FLTCTL0.5	01/13/97	-3.5	%	RPD	CLC
FLTCTL0.5	01/13/97	-4.5	%	RPD	CLC
FLTCTL0.5	01/20/97	-0.5	%	RPD	CLC
FLTCTL0.5	01/20/97	-1.4	%	RPD	CLC
FLTCTL1.0	09/20/94	0.5	%	RPD	CLC
FLTCTL1.0	09/26/94	-7.5	%	RPD	CLC
FLTCTL1.0	09/26/94	-4.3	%	RPD	CLC
FLTCTL1.0	10/07/94	14.6	%	RPD	GTL
FLTCTL1.0	10/30/94	2.5	%	RPD	CLC
FLTCTL1.0	10/30/94	-3.1	%	RPD	CLC
FLTCTL1.0	11/14/94	10.2	%	RPD	CLC
FLTCTL1.0	11/14/94	-5.0	%	RPD	CLC
FLTCTL1.0	03/23/95	-3.3	%	RPD	CLC
FLTCTL1.0	03/31/95	-6.8	%	RPD	CLC
FLTCTL1.0	03/31/95	-6.5	%	RPD	CLC
FLTCTL1.0	03/31/95	-4.7	%	RPD	CLC
FLTCTL1.0	04/14/95	-9.6	%	RPD	CLC

The Lake Michigan Mass Balance Study Particulate Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
FLTCTL1.0	04/23/95	-5.3	%	RPD	CLC
FLTCTL1.0	05/03/95	-22.3	%	RPD	FPC
FLTCTL1.0	05/29/95	-0.1	%	RPD	CLC
FLTCTL1.0	05/29/95	2.7	%	RPD	CLC
FLTCTL1.0	05/29/95	-9.5	%	RPD	CLC
FLTCTL1.0	06/27/96	-5.7	%	RPD	CLC
FLTCTL1.0	07/09/96	3.5	%	RPD	CLC
FLTCTL1.0	07/15/96	2.0	%	RPD	CLC
FLTCTL1.0	08/14/96	-9.0	%	RPD	CLC
FLTCTL1.0	08/21/96	-5.2	%	RPD	CLC
FLTCTL1.0	08/26/96	-2.9	%	RPD	CLC
FLTCTL1.0	09/03/96	-2.5	%	RPD	CLC
FLTCTL1.0	09/03/96	-2.4	%	RPD	CLC
FLTCTL1.0	09/16/96	-2.9	%	RPD	CLC
FLTCTL1.0	09/25/96	-3.3	%	RPD	CLC
FLTCTL1.0	09/30/96	1.8	%	RPD	CLC
FLTCTL1.0	09/30/96	1.0	%	RPD	CLC
FLTCTL1.0	09/30/96	-5.9	%	RPD	CLC
FLTCTL1.0	10/09/96	-8.4	%	RPD	CLC
FLTCTL1.0	10/09/96	-3.7	%	RPD	CLC
FLTCTL1.0	10/14/96	-3.8	%	RPD	CLC
FLTCTL1.0	10/25/96	0.2	%	RPD	CLC
FLTCTL1.0	10/28/96	0.3	%	RPD	CLC
FLTCTL1.0	10/28/96	1.6	%	RPD	CLC
FLTCTL1.0	11/04/96	-3.2	%	RPD	CLC
FLTCTL1.0	11/04/96	-1.5	%	RPD	CLC
FLTCTL1.0	11/11/96	-0.4	%	RPD	CLC
FLTCTL1.0	11/18/96	0.9	%	RPD	CLC
FLTCTL1.0	11/25/96	-4.9	%	RPD	CLC
FLTCTL1.0	11/25/96	-4.5	%	RPD	CLC
FLTCTL1.0	12/02/96	-0.6	%	RPD	CLC
FLTCTL1.0	12/08/96	-1.6	%	RPD	CLC
FLTCTL1.0	12/17/96	-0.1	%	RPD	CLC
FLTCTL1.0	12/17/96	-1.5	%	RPD	CLC
FLTCTL1.0	12/17/96	-1.5	%	RPD	CLC
FLTCTL1.0	01/06/97	-3.5	%	RPD	CLC
FLTCTL1.0	01/07/97	5.1	%	RPD	CLC
FLTCTL1.0	01/13/97	-3.4	%	RPD	CLC
FLTCTL1.0	01/20/97	-0.8	%	RPD	CLC
FLTCTL1.0	01/20/97	4.4	%	RPD	CLC

III.B.2. Vapor Phase Hg Performance Standards

A standard curve, generated by injecting five different volumes of Hg saturated air, was analyzed before each day of analysis. The mass of Hg injected for the calibration curve was tailored to the expected value of the samples analyzed. A typical calibration curve consisted of five injection volumes: 0 μ l, 20 μ l, 40 μ l, 80 μ l and 160 μ l of mercury saturated air, which represented mercury masses shown in Table 21. After each of the standards for the calibration curve was analyzed, a linear regression was calculated to establish the coefficient of determination (r^2), the slope of the line, and how well the slope of the curve predicted each of the points in the calibration curve. The 0 ng standard area was subtracted from each of the other points which were then regressed against the expected values using no intercept (line was forced through zero). The r^2 was required to be >0.999 and each of the points on the curve had to be predicted by the slope within 5% of their true value.

TABLE 21. Amount of Hg Injected for a Typical Calibration Curve

Volume of Mercury Saturated Air Injected (μ l)	Amount of Mercury Injected (ng)
0	0
20	0.198
40	0.396
80	0.793
120	1.190

Flask temperature = 16.6°C

Vapor density = 9.912 ng/cm³

1 cm³ = 1000 μ l

Performance standards were analyzed after every sixth sample. The performance standards were chosen to be representative of the samples being analyzed. The integrated area from each of the performance standards had to be within 10% of the slope of the calibration curve in order to continue analyzing. If this was not the case, a second control was analyzed immediately. If the second control indicated that analyzer sensitivity had changed a second calibration curve was generated and sample analysis continued. The mean absolute percent difference of the performance standards (n=386) was 3.1 ± 2.2 . All performance standards had a CLC analytic remark code.

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL20	07/20/94	-3.7	%	RPD	CLC
VPCTL20	07/31/94	3.2	%	RPD	CLC
VPCTL20	10/25/94	5.5	%	RPD	CLC
VPCTL40	09/01/94	-4.2	%	RPD	CLC
VPCTL40	05/24/95	-1.6	%	RPD	CLC
VPCTL80	06/21/94	0.5	%	RPD	CLC
VPCTL80	06/21/94	-1.1	%	RPD	CLC
VPCTL80	06/24/94	0.2	%	RPD	CLC
VPCTL80	06/24/94	-0.8	%	RPD	CLC
VPCTL80	06/29/94	1.3	%	RPD	CLC
VPCTL80	06/29/94	0.8	%	RPD	CLC
VPCTL80	06/29/94	4.0	%	RPD	CLC
VPCTL80	06/29/94	1.2	%	RPD	CLC
VPCTL80	06/29/94	4.2	%	RPD	CLC
VPCTL80	06/29/94	7.2	%	RPD	CLC
VPCTL80	06/29/94	6.5	%	RPD	CLC
VPCTL80	07/08/94	2.1	%	RPD	CLC
VPCTL80	07/08/94	5.7	%	RPD	CLC
VPCTL80	07/13/94	0.5	%	RPD	CLC
VPCTL80	07/17/94	2.9	%	RPD	CLC
VPCTL80	07/17/94	-5.1	%	RPD	CLC
VPCTL80	07/17/94	-3.5	%	RPD	CLC
VPCTL80	07/17/94	-4.9	%	RPD	CLC
VPCTL80	07/19/94	-1.4	%	RPD	CLC
VPCTL80	07/19/94	4.4	%	RPD	CLC
VPCTL80	07/19/94	2.1	%	RPD	CLC
VPCTL80	07/19/94	0.8	%	RPD	CLC
VPCTL80	07/19/94	-3.9	%	RPD	CLC
VPCTL80	07/19/94	-3.1	%	RPD	CLC
VPCTL80	07/19/94	-1.5	%	RPD	CLC
VPCTL80	07/19/94	-6.4	%	RPD	CLC
VPCTL80	07/20/94	-0.3	%	RPD	CLC
VPCTL80	07/20/94	-1.7	%	RPD	CLC
VPCTL80	07/20/94	1.2	%	RPD	CLC
VPCTL80	07/20/94	2.4	%	RPD	CLC
VPCTL80	07/21/94	-3.2	%	RPD	CLC
VPCTL80	07/21/94	-1.7	%	RPD	CLC
VPCTL80	07/21/94	1.6	%	RPD	CLC
VPCTL80	07/21/94	-4.3	%	RPD	CLC
VPCTL80	07/21/94	-5.2	%	RPD	CLC
VPCTL80	07/21/94	2.8	%	RPD	CLC
VPCTL80	07/21/94	-2.5	%	RPD	CLC
VPCTL80	07/21/94	4.0	%	RPD	CLC
VPCTL80	07/21/94	-2.4	%	RPD	CLC
VPCTL80	07/21/94	3.7	%	RPD	CLC
VPCTL80	07/21/94	0.2	%	RPD	CLC
VPCTL80	07/26/94	1.6	%	RPD	CLC

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL80	07/26/94	1.7	%	RPD	CLC
VPCTL80	07/26/94	-2.1	%	RPD	CLC
VPCTL80	07/26/94	-1.7	%	RPD	CLC
VPCTL80	07/26/94	-7.5	%	RPD	CLC
VPCTL80	07/26/94	-1.3	%	RPD	CLC
VPCTL80	07/26/94	-0.5	%	RPD	CLC
VPCTL80	07/26/94	-5.3	%	RPD	CLC
VPCTL80	07/26/94	-7.1	%	RPD	CLC
VPCTL80	07/27/94	-1.9	%	RPD	CLC
VPCTL80	07/27/94	3.7	%	RPD	CLC
VPCTL80	07/27/94	2.6	%	RPD	CLC
VPCTL80	07/27/94	-1.4	%	RPD	CLC
VPCTL80	07/27/94	3.5	%	RPD	CLC
VPCTL80	07/27/94	-1.0	%	RPD	CLC
VPCTL80	07/27/94	-1.1	%	RPD	CLC
VPCTL80	07/27/94	0.6	%	RPD	CLC
VPCTL80	07/27/94	-1.2	%	RPD	CLC
VPCTL80	07/27/94	-0.2	%	RPD	CLC
VPCTL80	07/27/94	-2.3	%	RPD	CLC
VPCTL80	07/29/94	0.8	%	RPD	CLC
VPCTL80	07/29/94	-8.3	%	RPD	CLC
VPCTL80	07/29/94	0.8	%	RPD	CLC
VPCTL80	07/29/94	-3.3	%	RPD	CLC
VPCTL80	07/29/94	-4.1	%	RPD	CLC
VPCTL80	07/29/94	4.0	%	RPD	CLC
VPCTL80	07/30/94	-3.5	%	RPD	CLC
VPCTL80	07/30/94	-3.2	%	RPD	CLC
VPCTL80	07/30/94	-4.3	%	RPD	CLC
VPCTL80	07/30/94	-1.7	%	RPD	CLC
VPCTL80	07/30/94	-5.0	%	RPD	CLC
VPCTL80	07/30/94	-4.7	%	RPD	CLC
VPCTL80	07/30/94	1.6	%	RPD	CLC
VPCTL80	07/30/94	-2.1	%	RPD	CLC
VPCTL80	07/31/94	2.6	%	RPD	CLC
VPCTL80	07/31/94	-1.5	%	RPD	CLC
VPCTL80	08/04/94	3.7	%	RPD	CLC
VPCTL80	08/04/94	-0.5	%	RPD	CLC
VPCTL80	08/04/94	-2.9	%	RPD	CLC
VPCTL80	08/04/94	-0.6	%	RPD	CLC
VPCTL80	08/04/94	0.7	%	RPD	CLC
VPCTL80	08/04/94	-4.3	%	RPD	CLC
VPCTL80	08/08/94	-0.7	%	RPD	CLC
VPCTL80	08/08/94	0.2	%	RPD	CLC
VPCTL80	08/08/94	-3.4	%	RPD	CLC
VPCTL80	08/08/94	0.0	%	RPD	CLC
VPCTL80	08/08/94	-0.7	%	RPD	CLC
VPCTL80	08/08/94	-0.9	%	RPD	CLC

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL80	08/08/94	-0.6	%	RPD	CLC
VPCTL80	08/08/94	1.0	%	RPD	CLC
VPCTL80	08/10/94	2.8	%	RPD	CLC
VPCTL80	08/10/94	0.8	%	RPD	CLC
VPCTL80	08/10/94	3.8	%	RPD	CLC
VPCTL80	08/10/94	2.0	%	RPD	CLC
VPCTL80	08/10/94	2.2	%	RPD	CLC
VPCTL80	08/10/94	3.4	%	RPD	CLC
VPCTL80	08/10/94	6.5	%	RPD	CLC
VPCTL80	08/10/94	6.5	%	RPD	CLC
VPCTL80	08/10/94	5.7	%	RPD	CLC
VPCTL80	08/10/94	-4.7	%	RPD	CLC
VPCTL80	08/10/94	-0.2	%	RPD	CLC
VPCTL80	08/10/94	0.7	%	RPD	CLC
VPCTL80	08/10/94	2.6	%	RPD	CLC
VPCTL80	08/10/94	3.2	%	RPD	CLC
VPCTL80	08/10/94	3.6	%	RPD	CLC
VPCTL80	08/10/94	4.2	%	RPD	CLC
VPCTL80	08/16/94	-2.9	%	RPD	CLC
VPCTL80	08/16/94	1.0	%	RPD	CLC
VPCTL80	08/16/94	-1.7	%	RPD	CLC
VPCTL80	08/16/94	-2.0	%	RPD	CLC
VPCTL80	08/16/94	-7.4	%	RPD	CLC
VPCTL80	08/16/94	-7.3	%	RPD	CLC
VPCTL80	08/16/94	-4.6	%	RPD	CLC
VPCTL80	08/16/94	-5.2	%	RPD	CLC
VPCTL80	08/16/94	-4.8	%	RPD	CLC
VPCTL80	08/16/94	-2.8	%	RPD	CLC
VPCTL80	08/16/94	-2.9	%	RPD	CLC
VPCTL80	08/18/94	1.8	%	RPD	CLC
VPCTL80	08/18/94	3.1	%	RPD	CLC
VPCTL80	08/18/94	-1.2	%	RPD	CLC
VPCTL80	08/18/94	-4.4	%	RPD	CLC
VPCTL80	08/18/94	-4.0	%	RPD	CLC
VPCTL80	08/24/94	-1.4	%	RPD	CLC
VPCTL80	08/24/94	-0.8	%	RPD	CLC
VPCTL80	08/24/94	-0.1	%	RPD	CLC
VPCTL80	08/24/94	4.1	%	RPD	CLC
VPCTL80	09/01/94	-3.6	%	RPD	CLC
VPCTL80	09/06/94	3.0	%	RPD	CLC
VPCTL80	09/06/94	-1.0	%	RPD	CLC
VPCTL80	09/06/94	-1.9	%	RPD	CLC
VPCTL80	09/06/94	-1.3	%	RPD	CLC
VPCTL80	09/06/94	1.1	%	RPD	CLC
VPCTL80	09/13/94	-0.2	%	RPD	CLC
VPCTL80	09/13/94	-1.0	%	RPD	CLC
VPCTL80	09/13/94	-2.0	%	RPD	CLC

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL80	09/13/94	-1.4	%	RPD	CLC
VPCTL80	09/13/94	-3.2	%	RPD	CLC
VPCTL80	09/21/94	3.8	%	RPD	CLC
VPCTL80	09/21/94	2.7	%	RPD	CLC
VPCTL80	09/21/94	-0.5	%	RPD	CLC
VPCTL80	09/21/94	2.1	%	RPD	CLC
VPCTL80	09/21/94	3.2	%	RPD	CLC
VPCTL80	09/22/94	2.3	%	RPD	CLC
VPCTL80	09/22/94	2.3	%	RPD	CLC
VPCTL80	09/22/94	-2.8	%	RPD	CLC
VPCTL80	09/22/94	-0.7	%	RPD	CLC
VPCTL80	09/30/94	-0.3	%	RPD	CLC
VPCTL80	09/30/94	2.7	%	RPD	CLC
VPCTL80	09/30/94	-1.6	%	RPD	CLC
VPCTL80	09/30/94	-0.9	%	RPD	CLC
VPCTL80	09/30/94	2.8	%	RPD	CLC
VPCTL80	09/30/94	3.7	%	RPD	CLC
VPCTL80	10/11/94	-1.2	%	RPD	CLC
VPCTL80	10/11/94	-1.2	%	RPD	CLC
VPCTL80	10/11/94	2.5	%	RPD	CLC
VPCTL80	10/11/94	-2.1	%	RPD	CLC
VPCTL80	10/11/94	1.9	%	RPD	CLC
VPCTL80	10/11/94	1.7	%	RPD	CLC
VPCTL80	10/11/94	4.8	%	RPD	CLC
VPCTL80	10/25/94	-1.8	%	RPD	CLC
VPCTL80	10/25/94	-4.3	%	RPD	CLC
VPCTL80	10/25/94	-1.8	%	RPD	CLC
VPCTL80	10/25/94	0.3	%	RPD	CLC
VPCTL80	10/25/94	-5.0	%	RPD	CLC
VPCTL80	10/25/94	0.0	%	RPD	CLC
VPCTL80	10/25/94	-2.3	%	RPD	CLC
VPCTL80	10/25/94	-3.2	%	RPD	CLC
VPCTL80	10/25/94	-1.8	%	RPD	CLC
VPCTL80	10/25/94	-6.5	%	RPD	CLC
VPCTL80	11/04/94	0.7	%	RPD	CLC
VPCTL80	11/04/94	-1.2	%	RPD	CLC
VPCTL80	11/04/94	3.7	%	RPD	CLC
VPCTL80	11/04/94	2.7	%	RPD	CLC
VPCTL80	11/16/94	-9.3	%	RPD	CLC
VPCTL80	11/16/94	-2.3	%	RPD	CLC
VPCTL80	11/16/94	-2.1	%	RPD	CLC
VPCTL80	11/16/94	-1.5	%	RPD	CLC
VPCTL80	11/16/94	-0.8	%	RPD	CLC
VPCTL80	11/16/94	-4.6	%	RPD	CLC
VPCTL80	11/22/94	-2.5	%	RPD	CLC
VPCTL80	11/22/94	-5.6	%	RPD	CLC
VPCTL80	11/22/94	-4.7	%	RPD	CLC

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL80	11/22/94	-4.2	%	RPD	CLC
VPCTL80	11/22/94	-7.9	%	RPD	CLC
VPCTL80	12/02/94	-2.3	%	RPD	CLC
VPCTL80	12/02/94	-3.6	%	RPD	CLC
VPCTL80	12/02/94	-3.5	%	RPD	CLC
VPCTL80	12/09/94	-7.9	%	RPD	CLC
VPCTL80	12/09/94	-4.1	%	RPD	CLC
VPCTL80	12/09/94	-7.2	%	RPD	CLC
VPCTL80	12/17/94	-3.9	%	RPD	CLC
VPCTL80	12/17/94	-3.9	%	RPD	CLC
VPCTL80	01/05/95	0.6	%	RPD	CLC
VPCTL80	01/05/95	-5.9	%	RPD	CLC
VPCTL80	01/05/95	-3.9	%	RPD	CLC
VPCTL80	01/05/95	-2.7	%	RPD	CLC
VPCTL80	01/05/95	-4.7	%	RPD	CLC
VPCTL80	01/06/95	-10.6	%	RPD	CLC
VPCTL80	01/06/95	-11.7	%	RPD	CLC
VPCTL80	01/06/95	-3.2	%	RPD	CLC
VPCTL80	01/06/95	-5.9	%	RPD	CLC
VPCTL80	01/08/95	-7.0	%	RPD	CLC
VPCTL80	01/08/95	-7.5	%	RPD	CLC
VPCTL80	01/08/95	-9.2	%	RPD	CLC
VPCTL80	01/08/95	-8.6	%	RPD	CLC
VPCTL80	01/12/95	-0.7	%	RPD	CLC
VPCTL80	01/12/95	-5.4	%	RPD	CLC
VPCTL80	01/12/95	-8.1	%	RPD	CLC
VPCTL80	01/12/95	-7.6	%	RPD	CLC
VPCTL80	01/24/95	-8.0	%	RPD	CLC
VPCTL80	01/24/95	-2.9	%	RPD	CLC
VPCTL80	01/24/95	-6.2	%	RPD	CLC
VPCTL80	01/24/95	-4.4	%	RPD	CLC
VPCTL80	01/24/95	-3.0	%	RPD	CLC
VPCTL80	01/24/95	-3.8	%	RPD	CLC
VPCTL80	01/24/95	-5.1	%	RPD	CLC
VPCTL80	01/24/95	-5.8	%	RPD	CLC
VPCTL80	01/26/95	-2.8	%	RPD	CLC
VPCTL80	01/26/95	-2.8	%	RPD	CLC
VPCTL80	01/26/95	-4.5	%	RPD	CLC
VPCTL80	01/26/95	-5.7	%	RPD	CLC
VPCTL80	01/26/95	-2.4	%	RPD	CLC
VPCTL80	02/14/95	-2.7	%	RPD	CLC
VPCTL80	02/14/95	-6.1	%	RPD	CLC
VPCTL80	02/14/95	-1.3	%	RPD	CLC
VPCTL80	02/14/95	-5.0	%	RPD	CLC
VPCTL80	02/14/95	-5.0	%	RPD	CLC
VPCTL80	02/14/95	-5.6	%	RPD	CLC
VPCTL80	02/14/95	-6.7	%	RPD	CLC

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL80	02/28/95	0.3	%	RPD	CLC
VPCTL80	02/28/95	-2.1	%	RPD	CLC
VPCTL80	02/28/95	-0.9	%	RPD	CLC
VPCTL80	02/28/95	-1.9	%	RPD	CLC
VPCTL80	02/28/95	-6.2	%	RPD	CLC
VPCTL80	03/11/95	-0.9	%	RPD	CLC
VPCTL80	03/11/95	-1.3	%	RPD	CLC
VPCTL80	03/11/95	-2.6	%	RPD	CLC
VPCTL80	03/11/95	-2.6	%	RPD	CLC
VPCTL80	03/15/95	-2.3	%	RPD	CLC
VPCTL80	03/15/95	-6.9	%	RPD	CLC
VPCTL80	03/15/95	-5.2	%	RPD	CLC
VPCTL80	03/15/95	-5.4	%	RPD	CLC
VPCTL80	03/26/95	3.6	%	RPD	CLC
VPCTL80	03/26/95	-3.9	%	RPD	CLC
VPCTL80	03/26/95	0.8	%	RPD	CLC
VPCTL80	03/26/95	3.1	%	RPD	CLC
VPCTL80	03/26/95	2.2	%	RPD	CLC
VPCTL80	03/26/95	-3.1	%	RPD	CLC
VPCTL80	03/26/95	-0.2	%	RPD	CLC
VPCTL80	04/07/95	-0.2	%	RPD	CLC
VPCTL80	04/07/95	-0.3	%	RPD	CLC
VPCTL80	04/07/95	-4.1	%	RPD	CLC
VPCTL80	04/07/95	-3.1	%	RPD	CLC
VPCTL80	04/07/95	-3.8	%	RPD	CLC
VPCTL80	04/24/95	-6.6	%	RPD	CLC
VPCTL80	04/24/95	-5.3	%	RPD	CLC
VPCTL80	04/24/95	-4.5	%	RPD	CLC
VPCTL80	04/30/95	-1.0	%	RPD	CLC
VPCTL80	04/30/95	-4.0	%	RPD	CLC
VPCTL80	05/07/95	0.6	%	RPD	CLC
VPCTL80	05/07/95	2.5	%	RPD	CLC
VPCTL80	05/11/95	-1.5	%	RPD	CLC
VPCTL80	05/11/95	0.3	%	RPD	CLC
VPCTL80	05/17/95	-0.8	%	RPD	CLC
VPCTL80	05/17/95	-3.3	%	RPD	CLC
VPCTL80	05/17/95	-4.6	%	RPD	CLC
VPCTL80	05/24/95	1.7	%	RPD	CLC
VPCTL80	05/24/95	-2.5	%	RPD	CLC
VPCTL80	05/30/95	-3.1	%	RPD	CLC
VPCTL80	05/30/95	-4.4	%	RPD	CLC
VPCTL80	06/06/95	-1.7	%	RPD	CLC
VPCTL80	06/06/95	-5.4	%	RPD	CLC
VPCTL80	06/14/95	-3.2	%	RPD	CLC
VPCTL80	06/14/95	-0.8	%	RPD	CLC
VPCTL80	06/14/95	-5.9	%	RPD	CLC
VPCTL80	06/14/95	1.6	%	RPD	CLC

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL80	06/14/95	-1.6	%	RPD	CLC
VPCTL80	06/14/95	1.1	%	RPD	CLC
VPCTL80	06/28/95	-0.1	%	RPD	CLC
VPCTL80	06/28/95	3.5	%	RPD	CLC
VPCTL80	06/28/95	3.0	%	RPD	CLC
VPCTL80	06/28/95	0.0	%	RPD	CLC
VPCTL80	07/03/95	-0.9	%	RPD	CLC
VPCTL80	07/03/95	0.9	%	RPD	CLC
VPCTL80	07/03/95	0.9	%	RPD	CLC
VPCTL80	07/11/95	-7.6	%	RPD	CLC
VPCTL80	07/11/95	-2.5	%	RPD	CLC
VPCTL80	07/11/95	-9.8	%	RPD	CLC
VPCTL80	07/11/95	-0.7	%	RPD	CLC
VPCTL80	07/18/95	-3.4	%	RPD	CLC
VPCTL80	07/18/95	-2.4	%	RPD	CLC
VPCTL80	07/18/95	-2.2	%	RPD	CLC
VPCTL80	07/22/95	-6.2	%	RPD	CLC
VPCTL80	07/22/95	-2.7	%	RPD	CLC
VPCTL80	07/22/95	-4.1	%	RPD	CLC
VPCTL80	07/27/95	-0.4	%	RPD	CLC
VPCTL80	07/27/95	-6.5	%	RPD	CLC
VPCTL80	07/27/95	-3.0	%	RPD	CLC
VPCTL80	07/27/95	-6.9	%	RPD	CLC
VPCTL80	07/27/95	-0.5	%	RPD	CLC
VPCTL80	08/01/95	5.0	%	RPD	CLC
VPCTL80	08/01/95	-0.3	%	RPD	CLC
VPCTL80	08/01/95	0.3	%	RPD	CLC
VPCTL80	08/13/95	-2.6	%	RPD	CLC
VPCTL80	08/13/95	-2.5	%	RPD	CLC
VPCTL80	08/13/95	-3.1	%	RPD	CLC
VPCTL80	08/13/95	-4.7	%	RPD	CLC
VPCTL80	08/21/95	6.2	%	RPD	CLC
VPCTL80	08/21/95	3.5	%	RPD	CLC
VPCTL80	08/21/95	4.5	%	RPD	CLC
VPCTL80	08/21/95	4.1	%	RPD	CLC
VPCTL80	08/26/95	-1.2	%	RPD	CLC
VPCTL80	08/26/95	-2.7	%	RPD	CLC
VPCTL80	08/26/95	-2.0	%	RPD	CLC
VPCTL80	08/26/95	-5.2	%	RPD	CLC
VPCTL80	08/26/95	-8.0	%	RPD	CLC
VPCTL80	08/26/95	-8.7	%	RPD	CLC
VPCTL80	09/10/95	-4.1	%	RPD	CLC
VPCTL80	09/10/95	1.3	%	RPD	CLC
VPCTL80	09/10/95	-2.2	%	RPD	CLC
VPCTL80	09/10/95	-5.9	%	RPD	CLC
VPCTL80	09/10/95	-4.5	%	RPD	CLC
VPCTL80	09/10/95	-3.1	%	RPD	CLC

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL80	09/10/95	0.2	%	RPD	CLC
VPCTL80	09/10/95	-0.4	%	RPD	CLC
VPCTL80	09/10/95	-0.7	%	RPD	CLC
VPCTL80	09/10/95	-8.3	%	RPD	CLC
VPCTL80	09/10/95	-6.8	%	RPD	CLC
VPCTL80	09/15/95	1.5	%	RPD	CLC
VPCTL80	09/15/95	-2.2	%	RPD	CLC
VPCTL80	09/15/95	-0.4	%	RPD	CLC
VPCTL80	09/15/95	-4.6	%	RPD	CLC
VPCTL80	09/15/95	-2.2	%	RPD	CLC
VPCTL80	09/15/95	-5.2	%	RPD	CLC
VPCTL80	09/16/95	-1.0	%	RPD	CLC
VPCTL80	09/16/95	7.1	%	RPD	CLC
VPCTL80	09/16/95	8.8	%	RPD	CLC
VPCTL80	09/16/95	7.2	%	RPD	CLC
VPCTL80	09/16/95	5.2	%	RPD	CLC
VPCTL80	09/16/95	8.1	%	RPD	CLC
VPCTL80	09/20/95	-2.4	%	RPD	CLC
VPCTL80	09/20/95	-3.1	%	RPD	CLC
VPCTL80	09/20/95	-2.5	%	RPD	CLC
VPCTL80	09/20/95	-1.9	%	RPD	CLC
VPCTL80	09/20/95	-3.0	%	RPD	CLC
VPCTL80	09/30/95	-3.5	%	RPD	CLC
VPCTL80	09/30/95	-2.6	%	RPD	CLC
VPCTL80	09/30/95	-3.5	%	RPD	CLC
VPCTL80	09/30/95	-3.0	%	RPD	CLC
VPCTL80	09/30/95	-0.3	%	RPD	CLC
VPCTL80	09/30/95	-0.2	%	RPD	CLC
VPCTL80	09/30/95	-1.3	%	RPD	CLC
VPCTL80	09/30/95	-3.3	%	RPD	CLC
VPCTL80	10/10/95	-2.6	%	RPD	CLC
VPCTL80	10/10/95	-2.1	%	RPD	CLC
VPCTL80	10/10/95	-3.0	%	RPD	CLC
VPCTL80	10/16/95	0.9	%	RPD	CLC
VPCTL80	10/16/95	1.3	%	RPD	CLC
VPCTL80	10/18/95	-3.7	%	RPD	CLC
VPCTL80	10/18/95	-3.1	%	RPD	CLC
VPCTL80	10/18/95	-2.5	%	RPD	CLC
VPCTL80	10/18/95	-3.8	%	RPD	CLC
VPCTL80	10/18/95	-1.3	%	RPD	CLC
VPCTL80	10/18/95	-2.1	%	RPD	CLC
VPCTL80	10/25/95	-1.0	%	RPD	CLC
VPCTL80	10/25/95	-3.9	%	RPD	CLC
VPCTL80	10/25/95	-4.8	%	RPD	CLC
VPCTL80	10/25/95	0.3	%	RPD	CLC
VPCTL80	10/25/95	1.4	%	RPD	CLC
VPCTL80	11/03/95	-4.6	%	RPD	CLC

The Lake Michigan Mass Balance Study Vapor Phase Hg Controls

Control	Date	Result	Units	Result Statistic Type	ARC
VPCTL80	11/03/95	-2.1	%	RPD	CLC
VPCTL80	11/03/95	-4.3	%	RPD	CLC
VPCTL80	11/03/95	-2.7	%	RPD	CLC
VPCTL80	11/03/95	-3.2	%	RPD	CLC
VPCTL80	11/03/95	-2.2	%	RPD	CLC
VPCTL80	11/03/95	2.2	%	RPD	CLC
VPCTL80	11/03/95	2.3	%	RPD	CLC
VPCTL80	11/03/95	-4.0	%	RPD	CLC
VPCTL160	01/26/95	-2.0	%	RPD	CLC
VPCTL160	10/25/95	-2.9	%	RPD	CLC

III.B.3. Hg in Precipitation Performance Standards

A standard curve, generated by bubbling different volumes of Hg working standard solution (2ng ml^{-1}), was analyzed before each day of analysis. The amounts of Hg bubbled for the calibration curves were tailored to the expected value of the samples analyzed. A typical calibration curve consisted of five aqueous standards: 0 ng, 0.1 ng, 0.2 ng, 0.5 ng and 1.0 ng. After each of the standards for the calibration curve were analyzed, a linear regression was calculated to establish the coefficient of determination (r^2), the slope of the line, and how well the slope of the curve predicted each of the points in the calibration curve. The 0 ng standard area was subtracted from each of the other points which were then regressed against the expected values using no intercept (line was forced through zero). The r^2 was required to be >0.999 and each of the points on the curve had to be predicted by the slope within 10% of their true value.

Performance standards were analyzed after every sixth sample. The performance standards were chosen to be representative of the samples being analyzed. The integrated area from each of the performance standards had to be within 10% of the slope of the calibration curve in order to continue analyzing. If this was not the case, a second control was analyzed immediately. If the second control indicated that analyzer sensitivity had changed a second calibration curve was generated and sample analysis continued. The mean absolute percent difference of the performance standards ($n=908$) was 3.3 ± 2.5 .

The analytic remark code summary for the Hg in precipitation performance standards are presented below in Table 22. Performance standards which were higher than the calibration curve (flagged GTL) were run because samples were analyzed that were higher than the calibration curve and we wanted to verify the linear range of the analyzer.

TABLE 22. LMMBS Hg in Precipitation Performance Standard ARC Summary

ARC	CLC	GTL	TOTAL
N	834	74	908
PERCENT	91.85	8.15	100.00

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL0.05	08/02/94	-1.3	%	RPD	CLC
AQCTL0.05	08/02/94	5.8	%	RPD	CLC
AQCTL0.05	08/02/94	-0.3	%	RPD	CLC
AQCTL0.05	08/02/94	4.9	%	RPD	CLC
AQCTL0.05	08/02/94	0.9	%	RPD	CLC
AQCTL0.1	06/20/94	-0.4	%	RPD	CLC
AQCTL0.1	07/11/94	-1.9	%	RPD	CLC
AQCTL0.1	07/13/94	3.0	%	RPD	CLC
AQCTL0.1	07/13/94	-4.9	%	RPD	CLC
AQCTL0.1	07/13/94	-1.3	%	RPD	CLC
AQCTL0.1	08/02/94	-4.1	%	RPD	CLC
AQCTL0.1	08/17/94	-4.0	%	RPD	CLC
AQCTL0.1	08/17/94	-1.9	%	RPD	CLC
AQCTL0.1	08/17/94	-1.5	%	RPD	CLC
AQCTL0.1	08/17/94	-8.8	%	RPD	CLC
AQCTL0.1	08/17/94	-9.0	%	RPD	CLC
AQCTL0.1	08/17/94	-2.0	%	RPD	CLC
AQCTL0.1	08/18/94	-1.1	%	RPD	CLC
AQCTL0.1	08/18/94	-2.6	%	RPD	CLC
AQCTL0.1	08/18/94	-4.0	%	RPD	CLC
AQCTL0.1	02/01/95	-5.1	%	RPD	CLC
AQCTL0.1	02/17/95	-0.8	%	RPD	CLC
AQCTL0.1	02/17/95	-2.9	%	RPD	CLC
AQCTL0.1	02/17/95	-2.3	%	RPD	CLC
AQCTL0.1	06/21/95	-1.7	%	RPD	CLC
AQCTL0.1	07/26/95	5.1	%	RPD	CLC
AQCTL0.2	07/01/94	5.8	%	RPD	CLC
AQCTL0.2	07/01/94	3.3	%	RPD	CLC
AQCTL0.2	07/01/94	10.0	%	RPD	CLC
AQCTL0.2	07/01/94	4.2	%	RPD	CLC
AQCTL0.2	07/11/94	0.4	%	RPD	CLC
AQCTL0.2	07/18/94	2.4	%	RPD	CLC
AQCTL0.2	07/20/94	4.0	%	RPD	CLC
AQCTL0.2	08/05/94	3.6	%	RPD	CLC
AQCTL0.2	08/05/94	2.1	%	RPD	CLC
AQCTL0.2	08/17/94	-2.0	%	RPD	CLC
AQCTL0.2	08/26/94	-3.7	%	RPD	CLC
AQCTL0.2	08/26/94	0.3	%	RPD	CLC
AQCTL0.2	09/16/94	5.6	%	RPD	CLC
AQCTL0.2	09/30/94	5.7	%	RPD	CLC
AQCTL0.2	11/11/94	10.3	%	RPD	CLC
AQCTL0.2	11/28/94	-10.6	%	RPD	CLC
AQCTL0.2	12/16/94	-9.1	%	RPD	CLC
AQCTL0.2	05/30/95	0.7	%	RPD	CLC
AQCTL0.2	06/06/95	-2.9	%	RPD	CLC
AQCTL0.2	06/08/95	1.2	%	RPD	CLC
AQCTL0.2	11/06/95	-4.3	%	RPD	CLC
AQCTL0.2	11/17/95	-0.2	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL0.2	11/17/95	-2.9	%	RPD	CLC
AQCTL0.2	11/17/95	-5.2	%	RPD	CLC
AQCTL0.2	11/17/95	-8.9	%	RPD	CLC
AQCTL0.2	11/17/95	-2.9	%	RPD	CLC
AQCTL0.2	11/20/95	-2.4	%	RPD	CLC
AQCTL0.2	11/20/95	-4.2	%	RPD	CLC
AQCTL0.5	06/20/94	-6.7	%	RPD	CLC
AQCTL0.5	06/20/94	-2.0	%	RPD	CLC
AQCTL0.5	07/03/94	0.0	%	RPD	CLC
AQCTL0.5	08/03/94	3.2	%	RPD	CLC
AQCTL0.5	08/10/94	2.4	%	RPD	CLC
AQCTL0.5	08/10/94	3.4	%	RPD	CLC
AQCTL0.5	08/10/94	-0.2	%	RPD	CLC
AQCTL0.5	08/10/94	-2.8	%	RPD	CLC
AQCTL0.5	08/10/94	0.2	%	RPD	CLC
AQCTL0.5	08/10/94	-1.6	%	RPD	CLC
AQCTL0.5	08/10/94	-2.7	%	RPD	CLC
AQCTL0.5	08/10/94	2.2	%	RPD	CLC
AQCTL0.5	08/22/94	0.0	%	RPD	CLC
AQCTL0.5	08/22/94	-1.4	%	RPD	CLC
AQCTL0.5	08/31/94	1.2	%	RPD	CLC
AQCTL0.5	09/02/94	-1.6	%	RPD	CLC
AQCTL0.5	09/12/94	2.2	%	RPD	CLC
AQCTL0.5	09/13/94	-1.6	%	RPD	CLC
AQCTL0.5	09/13/94	-1.5	%	RPD	CLC
AQCTL0.5	09/15/94	2.8	%	RPD	CLC
AQCTL0.5	09/15/94	2.7	%	RPD	CLC
AQCTL0.5	10/21/94	8.4	%	RPD	CLC
AQCTL0.5	10/26/94	1.0	%	RPD	CLC
AQCTL0.5	11/23/94	-5.4	%	RPD	CLC
AQCTL0.5	12/08/94	7.3	%	RPD	CLC
AQCTL0.5	12/09/94	3.0	%	RPD	CLC
AQCTL0.5	12/09/94	-0.1	%	RPD	CLC
AQCTL0.5	12/13/94	-4.5	%	RPD	CLC
AQCTL0.5	12/15/94	0.1	%	RPD	CLC
AQCTL0.5	12/15/94	-9.0	%	RPD	CLC
AQCTL0.5	12/16/94	6.6	%	RPD	CLC
AQCTL0.5	12/16/94	1.3	%	RPD	CLC
AQCTL0.5	01/12/95	-3.7	%	RPD	CLC
AQCTL0.5	02/15/95	1.6	%	RPD	CLC
AQCTL0.5	03/01/95	-1.7	%	RPD	CLC
AQCTL0.5	03/01/95	-7.1	%	RPD	CLC
AQCTL0.5	03/01/95	-5.9	%	RPD	CLC
AQCTL0.5	03/02/95	-0.5	%	RPD	CLC
AQCTL0.5	03/06/95	7.8	%	RPD	CLC
AQCTL0.5	03/06/95	6.9	%	RPD	CLC
AQCTL0.5	03/08/95	-3.3	%	RPD	CLC
AQCTL0.5	03/08/95	1.9	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL0.5	03/13/95	0.1	%	RPD	CLC
AQCTL0.5	03/16/95	-1.8	%	RPD	CLC
AQCTL0.5	03/24/95	2.0	%	RPD	CLC
AQCTL0.5	04/05/95	4.5	%	RPD	CLC
AQCTL0.5	04/05/95	1.3	%	RPD	CLC
AQCTL0.5	04/06/95	-3.9	%	RPD	CLC
AQCTL0.5	04/06/95	-4.1	%	RPD	CLC
AQCTL0.5	04/07/95	-7.6	%	RPD	CLC
AQCTL0.5	04/21/95	-4.0	%	RPD	CLC
AQCTL0.5	05/01/95	-5.6	%	RPD	CLC
AQCTL0.5	05/01/95	-6.2	%	RPD	CLC
AQCTL0.5	05/04/95	-0.1	%	RPD	CLC
AQCTL0.5	05/04/95	0.6	%	RPD	CLC
AQCTL0.5	05/10/95	2.2	%	RPD	CLC
AQCTL0.5	05/23/95	-1.9	%	RPD	CLC
AQCTL0.5	05/23/95	1.9	%	RPD	CLC
AQCTL0.5	06/06/95	-1.2	%	RPD	CLC
AQCTL0.5	06/12/95	-2.9	%	RPD	CLC
AQCTL0.5	06/21/95	-0.8	%	RPD	CLC
AQCTL0.5	06/21/95	-0.2	%	RPD	CLC
AQCTL0.5	07/03/95	9.6	%	RPD	CLC
AQCTL0.5	07/03/95	-4.6	%	RPD	CLC
AQCTL0.5	07/13/95	0.6	%	RPD	CLC
AQCTL0.5	08/04/95	-3.6	%	RPD	CLC
AQCTL0.5	08/17/95	-2.6	%	RPD	CLC
AQCTL0.5	08/17/95	0.7	%	RPD	CLC
AQCTL0.5	08/23/95	-5.5	%	RPD	CLC
AQCTL0.5	08/23/95	2.4	%	RPD	CLC
AQCTL0.5	09/25/95	-8.4	%	RPD	CLC
AQCTL0.5	09/29/95	-5.1	%	RPD	CLC
AQCTL0.5	09/29/95	2.5	%	RPD	CLC
AQCTL0.5	09/29/95	6.1	%	RPD	CLC
AQCTL0.5	10/03/95	0.5	%	RPD	CLC
AQCTL0.5	10/12/95	0.3	%	RPD	CLC
AQCTL0.5	10/12/95	8.2	%	RPD	CLC
AQCTL0.5	10/12/95	1.6	%	RPD	CLC
AQCTL0.5	10/12/95	4.2	%	RPD	CLC
AQCTL0.5	10/20/95	-5.9	%	RPD	CLC
AQCTL0.5	10/20/95	12.6	%	RPD	CLC
AQCTL0.5	10/20/95	5.3	%	RPD	CLC
AQCTL0.5	10/26/95	-1.3	%	RPD	CLC
AQCTL0.5	10/26/95	-0.6	%	RPD	CLC
AQCTL0.5	10/26/95	-6.3	%	RPD	CLC
AQCTL0.5	11/03/95	-3.1	%	RPD	CLC
AQCTL0.5	11/03/95	-5.2	%	RPD	CLC
AQCTL1.0	06/17/94	3.5	%	RPD	CLC
AQCTL1.0	06/17/94	5.6	%	RPD	CLC
AQCTL1.0	06/17/94	6.7	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	06/17/94	6.0	%	RPD	CLC
AQCTL1.0	06/20/94	4.8	%	RPD	CLC
AQCTL1.0	06/20/94	-2.1	%	RPD	CLC
AQCTL1.0	06/27/94	4.3	%	RPD	CLC
AQCTL1.0	06/27/94	-3.3	%	RPD	CLC
AQCTL1.0	06/27/94	3.6	%	RPD	CLC
AQCTL1.0	06/29/94	7.1	%	RPD	CLC
AQCTL1.0	06/29/94	5.1	%	RPD	CLC
AQCTL1.0	06/29/94	3.5	%	RPD	CLC
AQCTL1.0	06/29/94	6.0	%	RPD	CLC
AQCTL1.0	06/29/94	2.3	%	RPD	CLC
AQCTL1.0	07/01/94	1.3	%	RPD	CLC
AQCTL1.0	07/01/94	1.1	%	RPD	CLC
AQCTL1.0	07/01/94	0.7	%	RPD	CLC
AQCTL1.0	07/03/94	0.0	%	RPD	CLC
AQCTL1.0	07/08/94	3.0	%	RPD	CLC
AQCTL1.0	07/08/94	-0.3	%	RPD	CLC
AQCTL1.0	07/08/94	3.3	%	RPD	CLC
AQCTL1.0	07/11/94	0.7	%	RPD	CLC
AQCTL1.0	07/11/94	-4.4	%	RPD	CLC
AQCTL1.0	07/11/94	-7.1	%	RPD	CLC
AQCTL1.0	07/11/94	-3.1	%	RPD	CLC
AQCTL1.0	07/11/94	-1.4	%	RPD	CLC
AQCTL1.0	07/13/94	2.4	%	RPD	CLC
AQCTL1.0	07/13/94	-0.6	%	RPD	CLC
AQCTL1.0	07/13/94	0.4	%	RPD	CLC
AQCTL1.0	07/13/94	1.0	%	RPD	CLC
AQCTL1.0	07/18/94	-0.3	%	RPD	CLC
AQCTL1.0	07/18/94	7.5	%	RPD	CLC
AQCTL1.0	07/18/94	6.3	%	RPD	CLC
AQCTL1.0	07/20/94	2.8	%	RPD	CLC
AQCTL1.0	07/20/94	5.2	%	RPD	CLC
AQCTL1.0	07/20/94	-5.0	%	RPD	CLC
AQCTL1.0	07/20/94	8.2	%	RPD	CLC
AQCTL1.0	07/22/94	8.0	%	RPD	CLC
AQCTL1.0	07/22/94	5.9	%	RPD	CLC
AQCTL1.0	07/22/94	1.5	%	RPD	CLC
AQCTL1.0	07/22/94	6.7	%	RPD	CLC
AQCTL1.0	07/23/94	-1.9	%	RPD	CLC
AQCTL1.0	07/23/94	5.3	%	RPD	CLC
AQCTL1.0	07/23/94	3.3	%	RPD	CLC
AQCTL1.0	07/23/94	2.1	%	RPD	CLC
AQCTL1.0	07/29/94	4.9	%	RPD	CLC
AQCTL1.0	07/29/94	9.5	%	RPD	CLC
AQCTL1.0	07/29/94	14.2	%	RPD	CLC
AQCTL1.0	07/29/94	7.2	%	RPD	CLC
AQCTL1.0	07/29/94	4.2	%	RPD	CLC
AQCTL1.0	08/01/94	4.0	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	08/01/94	3.5	%	RPD	CLC
AQCTL1.0	08/01/94	3.8	%	RPD	CLC
AQCTL1.0	08/01/94	2.1	%	RPD	CLC
AQCTL1.0	08/03/94	-1.6	%	RPD	CLC
AQCTL1.0	08/03/94	3.5	%	RPD	CLC
AQCTL1.0	08/03/94	4.1	%	RPD	CLC
AQCTL1.0	08/05/94	-0.3	%	RPD	CLC
AQCTL1.0	08/05/94	0.6	%	RPD	CLC
AQCTL1.0	08/05/94	3.7	%	RPD	CLC
AQCTL1.0	08/05/94	-3.8	%	RPD	CLC
AQCTL1.0	08/09/94	7.1	%	RPD	CLC
AQCTL1.0	08/09/94	9.0	%	RPD	CLC
AQCTL1.0	08/09/94	7.0	%	RPD	CLC
AQCTL1.0	08/10/94	2.6	%	RPD	CLC
AQCTL1.0	08/10/94	2.8	%	RPD	CLC
AQCTL1.0	08/10/94	5.5	%	RPD	CLC
AQCTL1.0	08/15/94	7.5	%	RPD	CLC
AQCTL1.0	08/15/94	2.5	%	RPD	CLC
AQCTL1.0	08/15/94	-6.9	%	RPD	CLC
AQCTL1.0	08/15/94	0.5	%	RPD	CLC
AQCTL1.0	08/17/94	2.4	%	RPD	CLC
AQCTL1.0	08/17/94	1.5	%	RPD	CLC
AQCTL1.0	08/18/94	1.3	%	RPD	CLC
AQCTL1.0	08/18/94	-0.3	%	RPD	CLC
AQCTL1.0	08/18/94	1.7	%	RPD	CLC
AQCTL1.0	08/18/94	-5.7	%	RPD	CLC
AQCTL1.0	08/18/94	2.4	%	RPD	CLC
AQCTL1.0	08/22/94	-0.4	%	RPD	CLC
AQCTL1.0	08/22/94	2.3	%	RPD	CLC
AQCTL1.0	08/22/94	-0.3	%	RPD	CLC
AQCTL1.0	08/22/94	-4.6	%	RPD	CLC
AQCTL1.0	08/22/94	-2.0	%	RPD	CLC
AQCTL1.0	08/24/94	0.6	%	RPD	CLC
AQCTL1.0	08/24/94	-0.5	%	RPD	CLC
AQCTL1.0	08/24/94	-1.0	%	RPD	CLC
AQCTL1.0	08/24/94	-2.7	%	RPD	CLC
AQCTL1.0	08/24/94	-2.9	%	RPD	CLC
AQCTL1.0	08/26/94	6.0	%	RPD	CLC
AQCTL1.0	08/26/94	8.0	%	RPD	CLC
AQCTL1.0	08/31/94	3.4	%	RPD	CLC
AQCTL1.0	08/31/94	3.1	%	RPD	CLC
AQCTL1.0	08/31/94	3.9	%	RPD	CLC
AQCTL1.0	08/31/94	3.5	%	RPD	CLC
AQCTL1.0	09/02/94	-0.7	%	RPD	CLC
AQCTL1.0	09/02/94	-0.1	%	RPD	CLC
AQCTL1.0	09/02/94	0.5	%	RPD	CLC
AQCTL1.0	09/02/94	0.6	%	RPD	CLC
AQCTL1.0	09/07/94	2.9	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	09/07/94	2.3	%	RPD	CLC
AQCTL1.0	09/09/94	1.2	%	RPD	CLC
AQCTL1.0	09/09/94	1.8	%	RPD	CLC
AQCTL1.0	09/09/94	0.8	%	RPD	CLC
AQCTL1.0	09/09/94	2.5	%	RPD	CLC
AQCTL1.0	09/12/94	4.2	%	RPD	CLC
AQCTL1.0	09/12/94	4.4	%	RPD	CLC
AQCTL1.0	09/12/94	2.4	%	RPD	CLC
AQCTL1.0	09/12/94	2.7	%	RPD	CLC
AQCTL1.0	09/13/94	0.5	%	RPD	CLC
AQCTL1.0	09/13/94	0.0	%	RPD	CLC
AQCTL1.0	09/13/94	0.9	%	RPD	CLC
AQCTL1.0	09/13/94	1.8	%	RPD	CLC
AQCTL1.0	09/13/94	-1.6	%	RPD	CLC
AQCTL1.0	09/13/94	2.1	%	RPD	CLC
AQCTL1.0	09/13/94	2.0	%	RPD	CLC
AQCTL1.0	09/13/94	4.1	%	RPD	CLC
AQCTL1.0	09/13/94	6.6	%	RPD	CLC
AQCTL1.0	09/14/94	-1.1	%	RPD	CLC
AQCTL1.0	09/14/94	1.3	%	RPD	CLC
AQCTL1.0	09/14/94	1.4	%	RPD	CLC
AQCTL1.0	09/14/94	1.1	%	RPD	CLC
AQCTL1.0	09/15/94	0.4	%	RPD	CLC
AQCTL1.0	09/15/94	2.0	%	RPD	CLC
AQCTL1.0	09/15/94	0.4	%	RPD	CLC
AQCTL1.0	09/15/94	3.5	%	RPD	CLC
AQCTL1.0	09/15/94	1.8	%	RPD	CLC
AQCTL1.0	09/15/94	4.5	%	RPD	CLC
AQCTL1.0	09/15/94	3.8	%	RPD	CLC
AQCTL1.0	09/15/94	3.4	%	RPD	CLC
AQCTL1.0	09/15/94	2.7	%	RPD	CLC
AQCTL1.0	09/16/94	11.4	%	RPD	CLC
AQCTL1.0	09/16/94	7.9	%	RPD	CLC
AQCTL1.0	09/16/94	7.7	%	RPD	CLC
AQCTL1.0	09/16/94	7.6	%	RPD	CLC
AQCTL1.0	09/16/94	6.9	%	RPD	CLC
AQCTL1.0	09/21/94	-0.4	%	RPD	CLC
AQCTL1.0	09/21/94	6.8	%	RPD	CLC
AQCTL1.0	09/21/94	7.1	%	RPD	CLC
AQCTL1.0	09/21/94	-0.7	%	RPD	CLC
AQCTL1.0	09/21/94	1.6	%	RPD	CLC
AQCTL1.0	09/27/94	2.1	%	RPD	CLC
AQCTL1.0	09/27/94	0.1	%	RPD	CLC
AQCTL1.0	09/27/94	2.4	%	RPD	CLC
AQCTL1.0	09/27/94	-0.8	%	RPD	CLC
AQCTL1.0	09/29/94	4.7	%	RPD	CLC
AQCTL1.0	09/29/94	4.6	%	RPD	CLC
AQCTL1.0	09/29/94	-9.0	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	09/29/94	1.6	%	RPD	CLC
AQCTL1.0	09/30/94	-7.3	%	RPD	CLC
AQCTL1.0	09/30/94	3.2	%	RPD	CLC
AQCTL1.0	09/30/94	7.4	%	RPD	CLC
AQCTL1.0	09/30/94	0.7	%	RPD	CLC
AQCTL1.0	10/04/94	3.9	%	RPD	CLC
AQCTL1.0	10/04/94	-1.5	%	RPD	CLC
AQCTL1.0	10/04/94	-2.2	%	RPD	CLC
AQCTL1.0	10/06/94	5.6	%	RPD	CLC
AQCTL1.0	10/06/94	7.0	%	RPD	CLC
AQCTL1.0	10/06/94	7.7	%	RPD	CLC
AQCTL1.0	10/06/94	3.2	%	RPD	CLC
AQCTL1.0	10/06/94	0.6	%	RPD	CLC
AQCTL1.0	10/06/94	-4.2	%	RPD	CLC
AQCTL1.0	10/06/94	3.7	%	RPD	CLC
AQCTL1.0	10/06/94	2.2	%	RPD	CLC
AQCTL1.0	10/12/94	3.2	%	RPD	CLC
AQCTL1.0	10/12/94	5.2	%	RPD	CLC
AQCTL1.0	10/12/94	3.2	%	RPD	CLC
AQCTL1.0	10/12/94	5.5	%	RPD	CLC
AQCTL1.0	10/12/94	6.9	%	RPD	CLC
AQCTL1.0	10/13/94	1.3	%	RPD	CLC
AQCTL1.0	10/13/94	2.3	%	RPD	CLC
AQCTL1.0	10/13/94	3.8	%	RPD	CLC
AQCTL1.0	10/13/94	5.3	%	RPD	CLC
AQCTL1.0	10/13/94	4.4	%	RPD	CLC
AQCTL1.0	10/13/94	5.5	%	RPD	CLC
AQCTL1.0	10/13/94	6.9	%	RPD	CLC
AQCTL1.0	10/14/94	0.8	%	RPD	CLC
AQCTL1.0	10/14/94	1.6	%	RPD	CLC
AQCTL1.0	10/14/94	5.0	%	RPD	CLC
AQCTL1.0	10/14/94	6.4	%	RPD	CLC
AQCTL1.0	10/14/94	5.8	%	RPD	CLC
AQCTL1.0	10/21/94	7.1	%	RPD	CLC
AQCTL1.0	10/21/94	6.7	%	RPD	CLC
AQCTL1.0	10/21/94	7.0	%	RPD	CLC
AQCTL1.0	10/21/94	10.2	%	RPD	CLC
AQCTL1.0	10/21/94	8.6	%	RPD	CLC
AQCTL1.0	10/24/94	1.4	%	RPD	CLC
AQCTL1.0	10/24/94	1.9	%	RPD	CLC
AQCTL1.0	10/24/94	0.9	%	RPD	CLC
AQCTL1.0	10/26/94	1.6	%	RPD	CLC
AQCTL1.0	10/26/94	-1.1	%	RPD	CLC
AQCTL1.0	10/26/94	2.0	%	RPD	CLC
AQCTL1.0	10/27/94	0.2	%	RPD	CLC
AQCTL1.0	10/27/94	0.0	%	RPD	CLC
AQCTL1.0	10/27/94	-3.0	%	RPD	CLC
AQCTL1.0	10/27/94	3.1	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	10/27/94	3.2	%	RPD	CLC
AQCTL1.0	10/28/94	0.0	%	RPD	CLC
AQCTL1.0	10/28/94	2.1	%	RPD	CLC
AQCTL1.0	10/28/94	6.6	%	RPD	CLC
AQCTL1.0	10/28/94	6.8	%	RPD	CLC
AQCTL1.0	10/28/94	8.6	%	RPD	CLC
AQCTL1.0	11/07/94	-0.3	%	RPD	CLC
AQCTL1.0	11/07/94	4.6	%	RPD	CLC
AQCTL1.0	11/07/94	1.0	%	RPD	CLC
AQCTL1.0	11/07/94	1.6	%	RPD	CLC
AQCTL1.0	11/08/94	2.7	%	RPD	CLC
AQCTL1.0	11/08/94	6.5	%	RPD	CLC
AQCTL1.0	11/08/94	5.1	%	RPD	CLC
AQCTL1.0	11/08/94	2.8	%	RPD	CLC
AQCTL1.0	11/08/94	7.7	%	RPD	CLC
AQCTL1.0	11/08/94	-7.1	%	RPD	CLC
AQCTL1.0	11/09/94	1.0	%	RPD	CLC
AQCTL1.0	11/09/94	6.3	%	RPD	CLC
AQCTL1.0	11/10/94	2.5	%	RPD	CLC
AQCTL1.0	11/10/94	8.0	%	RPD	CLC
AQCTL1.0	11/10/94	7.6	%	RPD	CLC
AQCTL1.0	11/11/94	2.4	%	RPD	CLC
AQCTL1.0	11/11/94	2.5	%	RPD	CLC
AQCTL1.0	11/14/94	-4.3	%	RPD	CLC
AQCTL1.0	11/14/94	6.8	%	RPD	CLC
AQCTL1.0	11/14/94	4.5	%	RPD	CLC
AQCTL1.0	11/15/94	-0.3	%	RPD	CLC
AQCTL1.0	11/15/94	8.4	%	RPD	CLC
AQCTL1.0	11/18/94	8.1	%	RPD	CLC
AQCTL1.0	11/18/94	9.1	%	RPD	CLC
AQCTL1.0	11/18/94	-5.2	%	RPD	CLC
AQCTL1.0	11/18/94	-1.7	%	RPD	CLC
AQCTL1.0	11/18/94	5.3	%	RPD	CLC
AQCTL1.0	11/18/94	-0.3	%	RPD	CLC
AQCTL1.0	11/21/94	-6.1	%	RPD	CLC
AQCTL1.0	11/22/94	0.7	%	RPD	CLC
AQCTL1.0	11/22/94	-1.6	%	RPD	CLC
AQCTL1.0	11/23/94	5.8	%	RPD	CLC
AQCTL1.0	11/23/94	0.4	%	RPD	CLC
AQCTL1.0	11/28/94	0.8	%	RPD	CLC
AQCTL1.0	11/28/94	-2.6	%	RPD	CLC
AQCTL1.0	11/28/94	-0.6	%	RPD	CLC
AQCTL1.0	11/28/94	4.0	%	RPD	CLC
AQCTL1.0	12/06/94	4.1	%	RPD	CLC
AQCTL1.0	12/06/94	5.0	%	RPD	CLC
AQCTL1.0	12/07/94	7.1	%	RPD	CLC
AQCTL1.0	12/07/94	2.1	%	RPD	CLC
AQCTL1.0	12/07/94	7.8	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	12/07/94	7.5	%	RPD	CLC
AQCTL1.0	12/07/94	6.5	%	RPD	CLC
AQCTL1.0	12/08/94	6.3	%	RPD	CLC
AQCTL1.0	12/08/94	4.8	%	RPD	CLC
AQCTL1.0	12/09/94	1.7	%	RPD	CLC
AQCTL1.0	12/12/94	-0.9	%	RPD	CLC
AQCTL1.0	12/12/94	-5.2	%	RPD	CLC
AQCTL1.0	12/12/94	-1.8	%	RPD	CLC
AQCTL1.0	12/13/94	-2.4	%	RPD	CLC
AQCTL1.0	12/13/94	3.3	%	RPD	CLC
AQCTL1.0	12/13/94	-3.1	%	RPD	CLC
AQCTL1.0	12/15/94	1.1	%	RPD	CLC
AQCTL1.0	12/16/94	7.5	%	RPD	CLC
AQCTL1.0	12/16/94	1.3	%	RPD	CLC
AQCTL1.0	12/29/94	3.2	%	RPD	CLC
AQCTL1.0	01/06/95	0.9	%	RPD	CLC
AQCTL1.0	01/06/95	4.7	%	RPD	CLC
AQCTL1.0	01/06/95	5.9	%	RPD	CLC
AQCTL1.0	01/06/95	5.2	%	RPD	CLC
AQCTL1.0	01/09/95	0.3	%	RPD	CLC
AQCTL1.0	01/09/95	-6.3	%	RPD	CLC
AQCTL1.0	01/09/95	-6.1	%	RPD	CLC
AQCTL1.0	01/09/95	3.0	%	RPD	CLC
AQCTL1.0	01/10/95	-6.3	%	RPD	CLC
AQCTL1.0	01/10/95	0.1	%	RPD	CLC
AQCTL1.0	01/12/95	-0.1	%	RPD	CLC
AQCTL1.0	01/12/95	0.5	%	RPD	CLC
AQCTL1.0	01/13/95	-0.7	%	RPD	CLC
AQCTL1.0	01/19/95	3.1	%	RPD	CLC
AQCTL1.0	01/19/95	0.8	%	RPD	CLC
AQCTL1.0	01/19/95	2.1	%	RPD	CLC
AQCTL1.0	01/20/95	2.5	%	RPD	CLC
AQCTL1.0	01/20/95	7.4	%	RPD	CLC
AQCTL1.0	01/20/95	2.1	%	RPD	CLC
AQCTL1.0	01/25/95	-1.6	%	RPD	CLC
AQCTL1.0	01/25/95	4.1	%	RPD	CLC
AQCTL1.0	01/25/95	4.7	%	RPD	CLC
AQCTL1.0	01/26/95	5.2	%	RPD	CLC
AQCTL1.0	01/26/95	1.8	%	RPD	CLC
AQCTL1.0	01/26/95	5.5	%	RPD	CLC
AQCTL1.0	01/26/95	0.6	%	RPD	CLC
AQCTL1.0	01/26/95	3.5	%	RPD	CLC
AQCTL1.0	01/27/95	2.3	%	RPD	CLC
AQCTL1.0	01/27/95	0.9	%	RPD	CLC
AQCTL1.0	01/27/95	2.6	%	RPD	CLC
AQCTL1.0	01/27/95	4.3	%	RPD	CLC
AQCTL1.0	01/27/95	2.8	%	RPD	CLC
AQCTL1.0	02/01/95	-0.6	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	02/01/95	3.8	%	RPD	CLC
AQCTL1.0	02/01/95	2.2	%	RPD	CLC
AQCTL1.0	02/01/95	4.7	%	RPD	CLC
AQCTL1.0	02/01/95	1.5	%	RPD	CLC
AQCTL1.0	02/01/95	3.1	%	RPD	CLC
AQCTL1.0	02/15/95	1.8	%	RPD	CLC
AQCTL1.0	02/15/95	3.9	%	RPD	CLC
AQCTL1.0	02/15/95	-2.3	%	RPD	CLC
AQCTL1.0	02/17/95	1.5	%	RPD	CLC
AQCTL1.0	03/01/95	-2.0	%	RPD	CLC
AQCTL1.0	03/01/95	-8.0	%	RPD	CLC
AQCTL1.0	03/02/95	1.4	%	RPD	CLC
AQCTL1.0	03/02/95	1.2	%	RPD	CLC
AQCTL1.0	03/06/95	9.7	%	RPD	GTL
AQCTL1.0	03/08/95	0.2	%	RPD	CLC
AQCTL1.0	03/08/95	0.9	%	RPD	CLC
AQCTL1.0	03/10/95	-0.7	%	RPD	CLC
AQCTL1.0	03/10/95	-0.2	%	RPD	CLC
AQCTL1.0	03/10/95	0.2	%	RPD	CLC
AQCTL1.0	03/10/95	0.8	%	RPD	CLC
AQCTL1.0	03/13/95	0.2	%	RPD	CLC
AQCTL1.0	03/13/95	2.5	%	RPD	CLC
AQCTL1.0	03/16/95	-2.7	%	RPD	CLC
AQCTL1.0	03/16/95	-2.0	%	RPD	CLC
AQCTL1.0	03/24/95	-0.2	%	RPD	CLC
AQCTL1.0	03/24/95	0.3	%	RPD	CLC
AQCTL1.0	03/27/95	0.0	%	RPD	CLC
AQCTL1.0	03/27/95	2.9	%	RPD	CLC
AQCTL1.0	03/30/95	0.9	%	RPD	CLC
AQCTL1.0	03/30/95	1.5	%	RPD	CLC
AQCTL1.0	03/31/95	-2.3	%	RPD	CLC
AQCTL1.0	03/31/95	-0.1	%	RPD	CLC
AQCTL1.0	03/31/95	-1.3	%	RPD	CLC
AQCTL1.0	03/31/95	-7.9	%	RPD	CLC
AQCTL1.0	03/31/95	-1.3	%	RPD	CLC
AQCTL1.0	04/03/95	3.8	%	RPD	CLC
AQCTL1.0	04/03/95	0.3	%	RPD	CLC
AQCTL1.0	04/05/95	-0.4	%	RPD	CLC
AQCTL1.0	04/05/95	1.3	%	RPD	CLC
AQCTL1.0	04/05/95	4.7	%	RPD	CLC
AQCTL1.0	04/06/95	2.0	%	RPD	CLC
AQCTL1.0	04/06/95	-4.1	%	RPD	CLC
AQCTL1.0	04/06/95	-3.6	%	RPD	CLC
AQCTL1.0	04/07/95	1.3	%	RPD	CLC
AQCTL1.0	04/07/95	-1.4	%	RPD	CLC
AQCTL1.0	04/07/95	-2.9	%	RPD	CLC
AQCTL1.0	04/07/95	10.7	%	RPD	CLC
AQCTL1.0	04/10/95	2.8	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	04/10/95	0.5	%	RPD	CLC
AQCTL1.0	04/10/95	5.7	%	RPD	CLC
AQCTL1.0	04/10/95	1.0	%	RPD	CLC
AQCTL1.0	04/10/95	3.8	%	RPD	CLC
AQCTL1.0	04/14/95	1.5	%	RPD	CLC
AQCTL1.0	04/14/95	0.1	%	RPD	CLC
AQCTL1.0	04/14/95	1.1	%	RPD	CLC
AQCTL1.0	04/14/95	0.0	%	RPD	CLC
AQCTL1.0	04/17/95	-5.6	%	RPD	CLC
AQCTL1.0	04/17/95	-3.9	%	RPD	CLC
AQCTL1.0	04/17/95	-1.5	%	RPD	CLC
AQCTL1.0	04/17/95	-5.4	%	RPD	CLC
AQCTL1.0	04/17/95	2.2	%	RPD	CLC
AQCTL1.0	04/17/95	-3.1	%	RPD	CLC
AQCTL1.0	04/18/95	-3.1	%	RPD	CLC
AQCTL1.0	04/18/95	2.7	%	RPD	CLC
AQCTL1.0	04/18/95	1.2	%	RPD	CLC
AQCTL1.0	04/18/95	-2.9	%	RPD	CLC
AQCTL1.0	04/18/95	-6.1	%	RPD	CLC
AQCTL1.0	04/19/95	2.7	%	RPD	CLC
AQCTL1.0	04/19/95	2.6	%	RPD	CLC
AQCTL1.0	04/19/95	4.2	%	RPD	CLC
AQCTL1.0	04/19/95	0.5	%	RPD	CLC
AQCTL1.0	04/20/95	6.9	%	RPD	CLC
AQCTL1.0	04/20/95	3.7	%	RPD	CLC
AQCTL1.0	04/20/95	-2.6	%	RPD	CLC
AQCTL1.0	04/20/95	0.1	%	RPD	CLC
AQCTL1.0	04/21/95	6.6	%	RPD	CLC
AQCTL1.0	04/21/95	3.1	%	RPD	CLC
AQCTL1.0	04/21/95	0.1	%	RPD	CLC
AQCTL1.0	04/21/95	0.8	%	RPD	CLC
AQCTL1.0	04/24/95	2.4	%	RPD	CLC
AQCTL1.0	04/24/95	0.9	%	RPD	CLC
AQCTL1.0	04/26/95	3.3	%	RPD	CLC
AQCTL1.0	04/26/95	-1.4	%	RPD	CLC
AQCTL1.0	05/01/95	8.1	%	RPD	CLC
AQCTL1.0	05/01/95	9.2	%	RPD	CLC
AQCTL1.0	05/01/95	4.3	%	RPD	CLC
AQCTL1.0	05/01/95	4.8	%	RPD	CLC
AQCTL1.0	05/03/95	1.6	%	RPD	CLC
AQCTL1.0	05/03/95	0.8	%	RPD	CLC
AQCTL1.0	05/03/95	-1.9	%	RPD	CLC
AQCTL1.0	05/03/95	-1.1	%	RPD	CLC
AQCTL1.0	05/03/95	-1.4	%	RPD	CLC
AQCTL1.0	05/03/95	1.5	%	RPD	CLC
AQCTL1.0	05/04/95	2.0	%	RPD	CLC
AQCTL1.0	05/05/95	1.5	%	RPD	CLC
AQCTL1.0	05/05/95	4.1	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	05/05/95	-5.5	%	RPD	CLC
AQCTL1.0	05/05/95	4.7	%	RPD	CLC
AQCTL1.0	05/05/95	8.7	%	RPD	CLC
AQCTL1.0	05/10/95	2.3	%	RPD	CLC
AQCTL1.0	05/10/95	2.5	%	RPD	CLC
AQCTL1.0	05/10/95	0.5	%	RPD	CLC
AQCTL1.0	05/12/95	2.1	%	RPD	CLC
AQCTL1.0	05/12/95	2.9	%	RPD	CLC
AQCTL1.0	05/12/95	1.3	%	RPD	CLC
AQCTL1.0	05/12/95	2.2	%	RPD	CLC
AQCTL1.0	05/12/95	4.3	%	RPD	CLC
AQCTL1.0	05/15/95	-0.5	%	RPD	CLC
AQCTL1.0	05/15/95	-4.5	%	RPD	CLC
AQCTL1.0	05/15/95	1.0	%	RPD	CLC
AQCTL1.0	05/17/95	4.2	%	RPD	CLC
AQCTL1.0	05/17/95	2.9	%	RPD	CLC
AQCTL1.0	05/17/95	0.5	%	RPD	CLC
AQCTL1.0	05/17/95	-0.5	%	RPD	CLC
AQCTL1.0	05/19/95	2.1	%	RPD	CLC
AQCTL1.0	05/19/95	-5.7	%	RPD	CLC
AQCTL1.0	05/19/95	0.6	%	RPD	CLC
AQCTL1.0	05/19/95	1.6	%	RPD	CLC
AQCTL1.0	05/19/95	-2.9	%	RPD	CLC
AQCTL1.0	05/22/95	0.3	%	RPD	CLC
AQCTL1.0	05/22/95	3.0	%	RPD	CLC
AQCTL1.0	05/22/95	-5.1	%	RPD	CLC
AQCTL1.0	05/22/95	-3.9	%	RPD	CLC
AQCTL1.0	05/22/95	-5.4	%	RPD	CLC
AQCTL1.0	05/23/95	0.9	%	RPD	CLC
AQCTL1.0	05/23/95	-4.7	%	RPD	CLC
AQCTL1.0	05/25/95	-1.3	%	RPD	CLC
AQCTL1.0	05/25/95	-0.4	%	RPD	CLC
AQCTL1.0	05/25/95	1.1	%	RPD	CLC
AQCTL1.0	05/25/95	2.5	%	RPD	CLC
AQCTL1.0	05/30/95	0.7	%	RPD	CLC
AQCTL1.0	05/30/95	2.1	%	RPD	CLC
AQCTL1.0	06/02/95	1.7	%	RPD	CLC
AQCTL1.0	06/02/95	7.1	%	RPD	CLC
AQCTL1.0	06/02/95	5.8	%	RPD	CLC
AQCTL1.0	06/02/95	6.1	%	RPD	CLC
AQCTL1.0	06/02/95	7.2	%	RPD	CLC
AQCTL1.0	06/02/95	-2.8	%	RPD	CLC
AQCTL1.0	06/05/95	1.7	%	RPD	CLC
AQCTL1.0	06/05/95	2.8	%	RPD	CLC
AQCTL1.0	06/05/95	1.5	%	RPD	CLC
AQCTL1.0	06/05/95	0.7	%	RPD	CLC
AQCTL1.0	06/05/95	0.3	%	RPD	CLC
AQCTL1.0	06/05/95	2.1	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	06/06/95	0.5	%	RPD	CLC
AQCTL1.0	06/06/95	-6.1	%	RPD	CLC
AQCTL1.0	06/08/95	3.1	%	RPD	CLC
AQCTL1.0	06/08/95	-0.6	%	RPD	CLC
AQCTL1.0	06/08/95	6.8	%	RPD	CLC
AQCTL1.0	06/08/95	2.1	%	RPD	CLC
AQCTL1.0	06/12/95	0.7	%	RPD	CLC
AQCTL1.0	06/12/95	1.2	%	RPD	CLC
AQCTL1.0	06/14/95	0.3	%	RPD	CLC
AQCTL1.0	06/14/95	-4.6	%	RPD	CLC
AQCTL1.0	06/14/95	1.5	%	RPD	CLC
AQCTL1.0	06/19/95	2.0	%	RPD	CLC
AQCTL1.0	06/19/95	-3.0	%	RPD	CLC
AQCTL1.0	06/19/95	-0.5	%	RPD	CLC
AQCTL1.0	06/19/95	-2.4	%	RPD	CLC
AQCTL1.0	06/21/95	0.2	%	RPD	CLC
AQCTL1.0	06/21/95	2.0	%	RPD	CLC
AQCTL1.0	06/26/95	0.2	%	RPD	CLC
AQCTL1.0	06/26/95	8.9	%	RPD	CLC
AQCTL1.0	06/26/95	7.4	%	RPD	CLC
AQCTL1.0	06/26/95	9.0	%	RPD	CLC
AQCTL1.0	06/30/95	1.5	%	RPD	CLC
AQCTL1.0	06/30/95	-2.1	%	RPD	CLC
AQCTL1.0	06/30/95	2.9	%	RPD	CLC
AQCTL1.0	06/30/95	4.1	%	RPD	CLC
AQCTL1.0	07/03/95	4.0	%	RPD	CLC
AQCTL1.0	07/03/95	1.0	%	RPD	CLC
AQCTL1.0	07/03/95	-5.7	%	RPD	CLC
AQCTL1.0	07/06/95	2.0	%	RPD	CLC
AQCTL1.0	07/06/95	4.7	%	RPD	CLC
AQCTL1.0	07/06/95	-2.5	%	RPD	CLC
AQCTL1.0	07/06/95	-5.1	%	RPD	CLC
AQCTL1.0	07/06/95	6.0	%	RPD	CLC
AQCTL1.0	07/10/95	-0.4	%	RPD	CLC
AQCTL1.0	07/10/95	0.2	%	RPD	CLC
AQCTL1.0	07/10/95	-3.6	%	RPD	CLC
AQCTL1.0	07/10/95	-3.3	%	RPD	CLC
AQCTL1.0	07/12/95	3.1	%	RPD	CLC
AQCTL1.0	07/12/95	3.1	%	RPD	CLC
AQCTL1.0	07/12/95	0.6	%	RPD	CLC
AQCTL1.0	07/12/95	2.8	%	RPD	CLC
AQCTL1.0	07/12/95	-0.3	%	RPD	CLC
AQCTL1.0	07/12/95	1.0	%	RPD	CLC
AQCTL1.0	07/12/95	-0.3	%	RPD	CLC
AQCTL1.0	07/13/95	-0.1	%	RPD	CLC
AQCTL1.0	07/13/95	-8.3	%	RPD	CLC
AQCTL1.0	07/13/95	-2.9	%	RPD	CLC
AQCTL1.0	07/17/95	1.7	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	07/17/95	1.2	%	RPD	CLC
AQCTL1.0	07/17/95	2.6	%	RPD	CLC
AQCTL1.0	07/17/95	-1.1	%	RPD	CLC
AQCTL1.0	07/17/95	-1.6	%	RPD	CLC
AQCTL1.0	07/19/95	1.2	%	RPD	CLC
AQCTL1.0	07/19/95	-1.0	%	RPD	CLC
AQCTL1.0	07/19/95	1.8	%	RPD	CLC
AQCTL1.0	07/19/95	-2.2	%	RPD	CLC
AQCTL1.0	07/19/95	-1.8	%	RPD	CLC
AQCTL1.0	07/20/95	7.9	%	RPD	CLC
AQCTL1.0	07/20/95	-0.7	%	RPD	CLC
AQCTL1.0	07/20/95	-2.0	%	RPD	CLC
AQCTL1.0	07/20/95	-2.4	%	RPD	CLC
AQCTL1.0	07/26/95	3.8	%	RPD	CLC
AQCTL1.0	07/26/95	1.2	%	RPD	CLC
AQCTL1.0	07/26/95	3.8	%	RPD	CLC
AQCTL1.0	07/27/95	-3.6	%	RPD	CLC
AQCTL1.0	07/27/95	-2.6	%	RPD	CLC
AQCTL1.0	07/27/95	-6.0	%	RPD	CLC
AQCTL1.0	07/28/95	3.1	%	RPD	CLC
AQCTL1.0	07/28/95	1.0	%	RPD	CLC
AQCTL1.0	07/28/95	-6.1	%	RPD	CLC
AQCTL1.0	07/28/95	0.8	%	RPD	CLC
AQCTL1.0	07/28/95	6.1	%	RPD	CLC
AQCTL1.0	08/02/95	0.9	%	RPD	CLC
AQCTL1.0	08/02/95	2.6	%	RPD	CLC
AQCTL1.0	08/02/95	1.4	%	RPD	CLC
AQCTL1.0	08/02/95	-5.0	%	RPD	CLC
AQCTL1.0	08/03/95	0.6	%	RPD	CLC
AQCTL1.0	08/03/95	-3.3	%	RPD	CLC
AQCTL1.0	08/03/95	6.6	%	RPD	CLC
AQCTL1.0	08/03/95	7.9	%	RPD	CLC
AQCTL1.0	08/03/95	-0.2	%	RPD	CLC
AQCTL1.0	08/03/95	2.9	%	RPD	CLC
AQCTL1.0	08/04/95	1.0	%	RPD	CLC
AQCTL1.0	08/04/95	1.3	%	RPD	CLC
AQCTL1.0	08/04/95	-1.5	%	RPD	CLC
AQCTL1.0	08/04/95	-1.6	%	RPD	CLC
AQCTL1.0	08/04/95	-3.1	%	RPD	CLC
AQCTL1.0	08/07/95	4.5	%	RPD	CLC
AQCTL1.0	08/07/95	4.3	%	RPD	CLC
AQCTL1.0	08/07/95	9.0	%	RPD	CLC
AQCTL1.0	08/07/95	3.4	%	RPD	CLC
AQCTL1.0	08/07/95	2.7	%	RPD	CLC
AQCTL1.0	08/09/95	-2.6	%	RPD	CLC
AQCTL1.0	08/09/95	1.0	%	RPD	CLC
AQCTL1.0	08/09/95	-3.6	%	RPD	CLC
AQCTL1.0	08/09/95	-0.5	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	08/09/95	-2.9	%	RPD	CLC
AQCTL1.0	08/09/95	-0.8	%	RPD	CLC
AQCTL1.0	08/10/95	1.9	%	RPD	CLC
AQCTL1.0	08/10/95	-3.2	%	RPD	CLC
AQCTL1.0	08/10/95	1.5	%	RPD	CLC
AQCTL1.0	08/17/95	-4.1	%	RPD	CLC
AQCTL1.0	08/17/95	-0.1	%	RPD	CLC
AQCTL1.0	08/17/95	-2.5	%	RPD	CLC
AQCTL1.0	08/17/95	-2.3	%	RPD	CLC
AQCTL1.0	08/22/95	-4.4	%	RPD	CLC
AQCTL1.0	08/22/95	1.2	%	RPD	CLC
AQCTL1.0	08/22/95	-5.0	%	RPD	CLC
AQCTL1.0	08/23/95	-6.4	%	RPD	CLC
AQCTL1.0	08/23/95	-4.2	%	RPD	CLC
AQCTL1.0	08/23/95	-1.2	%	RPD	CLC
AQCTL1.0	08/23/95	-1.9	%	RPD	CLC
AQCTL1.0	08/23/95	-0.6	%	RPD	CLC
AQCTL1.0	08/25/95	-0.5	%	RPD	CLC
AQCTL1.0	08/25/95	1.8	%	RPD	CLC
AQCTL1.0	08/25/95	-2.6	%	RPD	CLC
AQCTL1.0	08/25/95	1.6	%	RPD	CLC
AQCTL1.0	08/28/95	-1.0	%	RPD	CLC
AQCTL1.0	08/28/95	1.3	%	RPD	CLC
AQCTL1.0	08/28/95	1.5	%	RPD	CLC
AQCTL1.0	08/30/95	-2.4	%	RPD	CLC
AQCTL1.0	08/30/95	-6.9	%	RPD	CLC
AQCTL1.0	08/30/95	-6.9	%	RPD	CLC
AQCTL1.0	08/30/95	0.6	%	RPD	CLC
AQCTL1.0	09/06/95	4.1	%	RPD	CLC
AQCTL1.0	09/06/95	5.3	%	RPD	CLC
AQCTL1.0	09/06/95	9.1	%	RPD	CLC
AQCTL1.0	09/06/95	7.3	%	RPD	CLC
AQCTL1.0	09/06/95	8.0	%	RPD	CLC
AQCTL1.0	09/07/95	3.7	%	RPD	CLC
AQCTL1.0	09/07/95	0.6	%	RPD	CLC
AQCTL1.0	09/07/95	5.1	%	RPD	CLC
AQCTL1.0	09/07/95	0.3	%	RPD	CLC
AQCTL1.0	09/07/95	-1.6	%	RPD	CLC
AQCTL1.0	09/13/95	3.9	%	RPD	CLC
AQCTL1.0	09/13/95	5.0	%	RPD	CLC
AQCTL1.0	09/13/95	-1.1	%	RPD	CLC
AQCTL1.0	09/21/95	0.1	%	RPD	CLC
AQCTL1.0	09/21/95	0.3	%	RPD	CLC
AQCTL1.0	09/21/95	-5.6	%	RPD	CLC
AQCTL1.0	09/21/95	-9.5	%	RPD	CLC
AQCTL1.0	09/25/95	-1.7	%	RPD	CLC
AQCTL1.0	09/25/95	1.5	%	RPD	CLC
AQCTL1.0	09/25/95	-1.0	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	09/29/95	-1.3	%	RPD	CLC
AQCTL1.0	09/29/95	0.4	%	RPD	CLC
AQCTL1.0	10/02/95	4.6	%	RPD	CLC
AQCTL1.0	10/02/95	1.5	%	RPD	CLC
AQCTL1.0	10/02/95	-4.2	%	RPD	CLC
AQCTL1.0	10/02/95	-6.9	%	RPD	CLC
AQCTL1.0	10/03/95	3.6	%	RPD	CLC
AQCTL1.0	10/03/95	3.1	%	RPD	CLC
AQCTL1.0	10/03/95	1.0	%	RPD	CLC
AQCTL1.0	10/05/95	3.0	%	RPD	CLC
AQCTL1.0	10/05/95	3.0	%	RPD	CLC
AQCTL1.0	10/05/95	6.9	%	RPD	CLC
AQCTL1.0	10/05/95	8.3	%	RPD	CLC
AQCTL1.0	10/05/95	9.6	%	RPD	CLC
AQCTL1.0	10/05/95	4.9	%	RPD	CLC
AQCTL1.0	10/09/95	2.0	%	RPD	CLC
AQCTL1.0	10/09/95	-4.7	%	RPD	CLC
AQCTL1.0	10/09/95	-5.7	%	RPD	CLC
AQCTL1.0	10/09/95	0.6	%	RPD	CLC
AQCTL1.0	10/09/95	-4.1	%	RPD	CLC
AQCTL1.0	10/09/95	1.0	%	RPD	CLC
AQCTL1.0	10/09/95	-9.8	%	RPD	CLC
AQCTL1.0	10/09/95	-7.3	%	RPD	CLC
AQCTL1.0	10/12/95	-6.4	%	RPD	CLC
AQCTL1.0	10/12/95	-1.4	%	RPD	CLC
AQCTL1.0	10/12/95	-6.6	%	RPD	CLC
AQCTL1.0	10/12/95	-7.9	%	RPD	CLC
AQCTL1.0	10/12/95	-1.3	%	RPD	CLC
AQCTL1.0	10/12/95	-6.2	%	RPD	CLC
AQCTL1.0	10/12/95	-6.4	%	RPD	CLC
AQCTL1.0	10/12/95	-6.7	%	RPD	CLC
AQCTL1.0	10/12/95	-9.6	%	RPD	CLC
AQCTL1.0	10/12/95	-4.7	%	RPD	CLC
AQCTL1.0	10/20/95	1.7	%	RPD	CLC
AQCTL1.0	10/20/95	2.4	%	RPD	CLC
AQCTL1.0	10/20/95	0.5	%	RPD	CLC
AQCTL1.0	10/20/95	-5.8	%	RPD	CLC
AQCTL1.0	10/20/95	7.0	%	RPD	CLC
AQCTL1.0	10/20/95	6.3	%	RPD	CLC
AQCTL1.0	10/20/95	4.3	%	RPD	CLC
AQCTL1.0	10/20/95	8.2	%	RPD	CLC
AQCTL1.0	10/20/95	7.8	%	RPD	CLC
AQCTL1.0	10/25/95	-2.0	%	RPD	CLC
AQCTL1.0	10/25/95	-1.7	%	RPD	CLC
AQCTL1.0	10/25/95	2.7	%	RPD	CLC
AQCTL1.0	10/25/95	-3.6	%	RPD	CLC
AQCTL1.0	10/25/95	-0.7	%	RPD	CLC
AQCTL1.0	10/25/95	-3.9	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	10/26/95	-1.9	%	RPD	CLC
AQCTL1.0	10/26/95	4.7	%	RPD	CLC
AQCTL1.0	10/26/95	2.8	%	RPD	CLC
AQCTL1.0	10/26/95	3.3	%	RPD	CLC
AQCTL1.0	10/26/95	-0.6	%	RPD	CLC
AQCTL1.0	10/26/95	3.2	%	RPD	CLC
AQCTL1.0	10/27/95	5.0	%	RPD	CLC
AQCTL1.0	10/27/95	-6.3	%	RPD	CLC
AQCTL1.0	10/27/95	-2.7	%	RPD	CLC
AQCTL1.0	10/27/95	-4.2	%	RPD	CLC
AQCTL1.0	10/27/95	-7.7	%	RPD	CLC
AQCTL1.0	10/27/95	-1.7	%	RPD	CLC
AQCTL1.0	10/27/95	-1.8	%	RPD	CLC
AQCTL1.0	10/27/95	-8.1	%	RPD	CLC
AQCTL1.0	10/31/95	1.4	%	RPD	CLC
AQCTL1.0	10/31/95	4.7	%	RPD	CLC
AQCTL1.0	10/31/95	-4.1	%	RPD	CLC
AQCTL1.0	10/31/95	-6.0	%	RPD	CLC
AQCTL1.0	11/01/95	-4.9	%	RPD	CLC
AQCTL1.0	11/01/95	-7.0	%	RPD	CLC
AQCTL1.0	11/01/95	-4.8	%	RPD	CLC
AQCTL1.0	11/01/95	-3.4	%	RPD	CLC
AQCTL1.0	11/01/95	-3.6	%	RPD	CLC
AQCTL1.0	11/01/95	-2.4	%	RPD	CLC
AQCTL1.0	11/01/95	-2.1	%	RPD	CLC
AQCTL1.0	11/01/95	-5.9	%	RPD	CLC
AQCTL1.0	11/02/95	-5.6	%	RPD	CLC
AQCTL1.0	11/02/95	-4.2	%	RPD	CLC
AQCTL1.0	11/02/95	-7.9	%	RPD	CLC
AQCTL1.0	11/02/95	-3.2	%	RPD	CLC
AQCTL1.0	11/02/95	-5.0	%	RPD	CLC
AQCTL1.0	11/02/95	-3.7	%	RPD	CLC
AQCTL1.0	11/02/95	1.3	%	RPD	CLC
AQCTL1.0	11/02/95	-7.1	%	RPD	CLC
AQCTL1.0	11/02/95	-2.2	%	RPD	CLC
AQCTL1.0	11/02/95	-5.7	%	RPD	CLC
AQCTL1.0	11/03/95	0.3	%	RPD	CLC
AQCTL1.0	11/06/95	-0.5	%	RPD	CLC
AQCTL1.0	11/06/95	3.3	%	RPD	CLC
AQCTL1.0	11/06/95	1.8	%	RPD	CLC
AQCTL1.0	11/06/95	-9.1	%	RPD	CLC
AQCTL1.0	11/06/95	1.0	%	RPD	CLC
AQCTL1.0	11/06/95	-3.2	%	RPD	CLC
AQCTL1.0	11/06/95	-3.3	%	RPD	CLC
AQCTL1.0	11/08/95	1.9	%	RPD	CLC
AQCTL1.0	11/08/95	0.3	%	RPD	CLC
AQCTL1.0	11/08/95	-5.0	%	RPD	CLC
AQCTL1.0	11/08/95	-7.5	%	RPD	CLC

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.0	11/08/95	-5.1	%	RPD	CLC
AQCTL1.0	11/08/95	0.9	%	RPD	CLC
AQCTL1.0	11/08/95	2.5	%	RPD	CLC
AQCTL1.0	11/08/95	4.4	%	RPD	CLC
AQCTL1.0	11/20/95	3.1	%	RPD	CLC
AQCTL1.0	11/20/95	3.4	%	RPD	CLC
AQCTL1.0	11/20/95	-5.2	%	RPD	CLC
AQCTL1.0	11/20/95	-7.2	%	RPD	CLC
AQCTL1.0	11/20/95	0.9	%	RPD	CLC
AQCTL1.0	12/14/95	0.2	%	RPD	CLC
AQCTL1.0	12/14/95	2.4	%	RPD	CLC
AQCTL1.0	12/14/95	0.1	%	RPD	CLC
AQCTL1.0	12/14/95	1.4	%	RPD	CLC
AQCTL1.0	12/14/95	0.6	%	RPD	CLC
AQCTL1.0	12/14/95	4.0	%	RPD	CLC
AQCTL1.5	07/08/94	-0.2	%	RPD	CLC
AQCTL1.5	07/22/94	0.5	%	RPD	CLC
AQCTL1.5	08/09/94	4.4	%	RPD	GTL
AQCTL1.5	10/06/94	0.9	%	RPD	GTL
AQCTL1.5	11/07/94	-0.3	%	RPD	GTL
AQCTL1.5	11/15/94	3.9	%	RPD	GTL
AQCTL1.5	12/06/94	7.4	%	RPD	GTL
AQCTL1.5	12/06/94	7.0	%	RPD	GTL
AQCTL1.5	12/09/94	6.0	%	RPD	GTL
AQCTL1.5	12/12/94	3.8	%	RPD	GTL
AQCTL1.5	01/25/95	3.3	%	RPD	GTL
AQCTL1.5	03/02/95	-0.3	%	RPD	GTL
AQCTL1.5	03/13/95	0.9	%	RPD	GTL
AQCTL1.5	03/13/95	1.6	%	RPD	GTL
AQCTL1.5	03/16/95	-0.6	%	RPD	GTL
AQCTL1.5	03/27/95	-0.1	%	RPD	GTL
AQCTL1.5	03/27/95	0.6	%	RPD	GTL
AQCTL1.5	04/03/95	2.6	%	RPD	GTL
AQCTL1.5	04/19/95	5.4	%	RPD	GTL
AQCTL1.5	04/24/95	0.6	%	RPD	GTL
AQCTL1.5	04/24/95	-4.1	%	RPD	GTL
AQCTL1.5	05/05/95	3.4	%	RPD	GTL
AQCTL1.5	05/12/95	2.9	%	RPD	GTL
AQCTL1.5	05/23/95	-7.7	%	RPD	GTL
AQCTL1.5	05/25/95	11.6	%	RPD	GTL
AQCTL1.5	07/20/95	4.2	%	RPD	GTL
AQCTL1.5	07/20/95	1.8	%	RPD	GTL
AQCTL1.5	07/26/95	3.5	%	RPD	GTL
AQCTL1.5	07/28/95	-2.6	%	RPD	GTL
AQCTL1.5	07/28/95	2.5	%	RPD	GTL
AQCTL1.5	08/02/95	2.4	%	RPD	GTL
AQCTL1.5	08/10/95	-0.5	%	RPD	GTL
AQCTL1.5	08/25/95	-2.5	%	RPD	GTL

The Lake Michigan Mass Balance Study Hg in Precipitation Controls

Control	Date	Result	Units	Result Statistic Type	ARC
AQCTL1.5	08/25/95	-3.7	%	RPD	GTL
AQCTL1.5	09/13/95	3.2	%	RPD	GTL
AQCTL1.5	10/03/95	3.2	%	RPD	GTL
AQCTL1.5	10/09/95	-0.2	%	RPD	GTL
AQCTL1.5	10/25/95	1.0	%	RPD	GTL
AQCTL1.5	12/14/95	3.8	%	RPD	GTL
AQCTL1.7	08/10/95	2.1	%	RPD	GTL
AQCTL2.0	06/17/94	6.2	%	RPD	GTL
AQCTL2.0	07/13/94	2.2	%	RPD	GTL
AQCTL2.0	07/23/94	-0.1	%	RPD	GTL
AQCTL2.0	08/03/94	3.4	%	RPD	GTL
AQCTL2.0	08/09/94	3.5	%	RPD	GTL
AQCTL2.0	08/15/94	-1.7	%	RPD	GTL
AQCTL2.0	08/18/94	-1.9	%	RPD	GTL
AQCTL2.0	08/22/94	2.1	%	RPD	GTL
AQCTL2.0	08/24/94	1.4	%	RPD	GTL
AQCTL2.0	08/26/94	4.1	%	RPD	GTL
AQCTL2.0	09/07/94	3.4	%	RPD	GTL
AQCTL2.0	09/07/94	3.1	%	RPD	GTL
AQCTL2.0	09/09/94	2.4	%	RPD	GTL
AQCTL2.0	11/21/94	3.0	%	RPD	GTL
AQCTL2.0	11/22/94	6.1	%	RPD	GTL
AQCTL2.0	11/22/94	0.7	%	RPD	GTL
AQCTL2.0	03/30/95	2.7	%	RPD	GTL
AQCTL2.0	06/12/95	3.1	%	RPD	GTL
AQCTL2.0	06/12/95	4.3	%	RPD	GTL
AQCTL2.0	06/19/95	1.0	%	RPD	GTL
AQCTL2.0	07/13/95	-0.5	%	RPD	GTL
AQCTL2.0	08/22/95	-5.2	%	RPD	GTL
AQCTL2.0	08/22/95	-3.2	%	RPD	GTL
AQCTL2.0	10/09/95	1.5	%	RPD	GTL
AQCTL2.0	10/25/95	9.7	%	RPD	GTL
AQCTL2.0	11/01/95	-7.9	%	RPD	GTL
AQCTL2.0	11/08/95	1.7	%	RPD	GTL
AQCTL2.0	11/20/95	3.3	%	RPD	GTL
AQCTL2.5	08/24/94	-3.2	%	RPD	GTL
AQCTL2.5	07/27/95	3.0	%	RPD	CLC
AQCTL2.5	07/27/95	0.8	%	RPD	CLC
AQCTL3.0	07/27/94	4.3	%	RPD	GTL
AQCTL3.0	10/25/95	-0.8	%	RPD	GTL
AQCTL3.0	10/25/95	1.2	%	RPD	GTL
AQCTL3.0	11/06/95	4.4	%	RPD	GTL
AQCTL3.5	11/06/95	1.7	%	RPD	GTL
AQCTL4.0	07/27/94	2.9	%	RPD	GTL

III.B.4. Vapor Phase Hg Method Inter-comparison

A method inter-comparison for vapor phase Hg was undertaken between the UMAQL gold-coated bead trap method and a Tekran 2537A continuous analyzer (Tekran, Inc., Ontario, Canada). The Tekran instrument samples, analyzes, and digitally archives real time high resolution vapor phase Hg concentrations. Three sampling sites were chosen for the inter-comparison: Chicago, IL (urban), Fort Lauderdale, FL (suburban), and Dexter, MI (semi-rural). The Tekran analyzer was configured to measure 15 minute composite samples. Twelve-hour integrated Tekran results were then compared to twelve-hour gold-coated bead samples. Table 23 summarizes the results of the method inter-comparison. No difference in concentration was observed between the two different methods ($\alpha=0.05$).

TABLE 23. Gold-coated Bead and Tekran 2537A Vapor Phase Hg Comparison

Location	Dates	N	Mean Conc.	Absolute RPD.
Chicago, IL	January, 1995	14	4.2 ng/m ³	4.4%
Fort Lauderdale, FL	August, 1995	21	2.6 ng/m ³	5.7%
Dexter, MI	October, 1995	22	1.6 ng/m ³	6.1%

III.B.5. Mercury in Precipitation Laboratory Inter-comparison

A laboratory inter-comparison for Hg in precipitation was conducted with Frontier Geosciences (Seattle, WA) using five samples from the LMMBS. The concentrations of these samples ranged from 9.6 to 30.8 ng L⁻¹. The results of the laboratory inter-comparison are presented in Table 24. The absolute mean relative difference between the laboratories was 3.1% (0.5 ± 0.5 ng L⁻¹), indicating extremely good agreement. No significant difference ($\alpha=0.05$) was found between the laboratories.

TABLE 24. UMAQL/Frontier Geosciences Laboratory Inter-comparison

Sample	UMAQL			Frontier Geosciences			RPD
	Rep.	RSD	Conc. (ng L ⁻¹)	Rep.	RSD	Conc. (ng L ⁻¹)	
LIC-01	2	0.2	30.5	3	1.5	31.1	2.0
LIC-02	2	0.2	11.5	3	5.7	12.8	0.4
LIC-03	2	2.0	9.6	3	12.1	9.7	0.6
LIC-04	2	3.7	30.8	4	8.4	30.2	2.0
LIC-05	2	0.4	18.8	4	6.0	18.7	0.5

III.C. Detectability

For the LMMBS the UMAQL calculated the system detection limit (SDL) for particulate phase Hg and vapor phase Hg using 3σ of the field blanks. The SDL for Hg in precipitation was calculated using 3σ of the total reagent blanks, since no true field blank is possible for precipitation samples. The UMAQL Hg detection limits calculated from LMMBS analysis are summarized below in Table 25.

TABLE 25. The UMAQL LMMBS Hg System Detection Limits

Media	N	Mean Blank	SDL (Mass)	SDL (Conc.)
Particulate Phase	91	$11.7 \pm 14.5 \text{ pg}$	43.5 pg	1.0 pg m^{-3}
Vapor Phase	102	$0.018 \pm 0.028 \text{ ng}$	0.084 ng	0.2 ng m^{-3}
Precipitation	216	$0.224 \pm 0.116 \text{ ng L}^{-1}$	N/A	0.3 ng L^{-1}

III.D. Completeness

We define completeness for LMMBS particulate phase Hg and vapor phase Hg samples using equation 1.

$$(1) \quad \text{Completeness} = \frac{v}{n} \times 100$$

Where: v = number of samples judged valid
 n = total number of scheduled sampling periods

There were 410 total scheduled ambient sampling periods (n) for the five atmospheric Hg sampling sites during the LMMBS. We define completeness for LMMBS Hg in precipitation samples using equation 1 as well, however, n is defined as the total number of discrete events collected. A completeness summary for LMMBS atmospheric Hg sampling is presented in Table 26.

TABLE 26. The UMAQL LMMBS Atmospheric Hg Completeness Summary

Media	n	v	Completeness
Particulate Phase	410	392	96 %
Vapor Phase	410	383	93 %
Precipitation	408	406	100 %

A detailed accounting of all the LMMBS particulate phase Hg and vapor phase Hg samples are presented in Figure 1 and Figure 2, respectively. No samples were taken the first three sample periods at the Chiwaukee Prairie site because the original site operator was unable to be at the site at 8:00 am local time. A new site operator was subsequently hired and trained. Most missing samples were due to site operators not collecting a sample. Other missing samples were either lost in the mail, lost due to analytical error or misplaced. Two Hg in precipitation samples were lost due to operator error.

FIGURE 1. LMMBS Particulate Phase Hg Sample Inventory

	BON	CWP	IIT	SBD	SHN		BON	CWP	IIT	SBD	SHN	
1-Jul-94	.	.	3	2	3		3-Apr-95	68	76	87	65	74
7-Jul-94	1	.	4	3	4		9-Apr-95	69	77	88	66	76
13-Jul-94	2	.	5	4	5		15-Apr-95	70	78	89	67	76
19-Jul-94	6~7	5~6	10~11	7	9		21-Apr-95	71	79	90	68	77
25-Jul-94	15~16	17~18	22~23	13	18		27-Apr-95	72	80	91	69	76
31-Jul-94	23	29~30	34~35	19	27		3-May-95	73	81	92	70	79
6-Aug-94	24	31	36	20	29		9-May-95	74	82	93	71	80
12-Aug-94	25	32	37	21	30		15-May-95	75	83	94	72	81
18-Aug-94	26	33	38	22	31		21-May-95	76	84	95	73	82
24-Aug-94	27	34	39	23	32		27-May-95	77	85	96	74	81
30-Aug-94	28	35	40	24	33		2-Jun-95	78	86	97	75	84
5-Sep-94	29	36	41	25	34		8-Jun-95	.	87	98	76	83
11-Sep-94	30	37	42	26	35		14-Jun-95	.	88	99	77	86
17-Sep-94	31	38	43	27	36		20-Jun-95	79	89	100	78	87
23-Sep-94	32	39	44	28	37		26-Jun-95	.	90	101	79	88
29-Sep-94	33	40	45	29	38		2-Jul-95	80	91	102	80	89
5-Oct-94	34	41	46	30	39		8-Jul-95	81	92	103	81	90
11-Oct-94	*	42	47	.	40		14-Jul-95	82	93	104	82	91
17-Oct-94	*	43	48	32	41		20-Jul-95	83	94	105	83	92
23-Oct-94	37	44	49	33	42		26-Jul-95	84	95	106	84	93
29-Oct-94	38	45	50	34	43		1-Aug-95	85	96	107	85	92
4-Nov-94	39	46	51	35	44		7-Aug-95	86	97	108	86	93
10-Nov-94	40	47	52	36	45		13-Aug-95	87	98	109	87	96
16-Nov-94	41	48	53	37	46		19-Aug-95	88	99	110	88	97
22-Nov-94	42	49	54	38	47		25-Aug-95	89	100	111	.	98
28-Nov-94	43	50	55	39	.		31-Aug-95	90	101	112	90	99
4-Dec-94	44	51	56	#	49		6-Sep-95	91	102	113	91	100
10-Dec-94	45	52	57	41	50		12-Sep-95	92	103	114	92	101
16-Dec-96	46	53	58	42	51		18-Sep-95	93	104	115	93	102
22-Dec-94	47	54	59	43	52		24-Sep-95	94	105	116	94	103
28-Dec-94	48	55	.	44	53		30-Sep-95	95	106	117	95	104
3-Jan-95	49	56	60	45	54		6-Oct-95	96	107	118	96	105
9-Jan-95	50	57	61	46	55		12-Oct-95	97	108	119	97	106
15-Jan-95	51	58	62	47	56		18-Oct-95	98	109	120	98	107
21-Jan-95	57	64	75	53	62		24-Oct-95	99	110	121	99	108
27-Jan-95	58	65	76	54	63		30-Oct-95	100	111	122	100	109
2-Feb-95	59	66	77	55	64							
8-Feb-95	60	67	78	56	65							
14-Feb-95	.	68	79	57	66							
20-Feb-95	61	69	80	58	67							
26-Feb-95	62	70	81	59	68							
4-Mar-95	63	71	82	60	69							
10-Mar-95	64	72	83	61	70							
16-Mar-95	65	73	84	62	71							
22-Mar-95	66	74	85	63	72							
28-Mar-95	67	75	86	64	73							

Sample was analyzed

Sample misplaced

. Sample not taken by operator

* Box containing samples lost by UPS

Analytical error

FIGURE 2. LMMBS Vapor Phase Hg Samples

	BON	CWP	IIT	SBD	SHN		BON	CWP	IIT	SBD	SHN	
1-Jul-94	.	.	3	2	3		3-Apr-95	68	74	87	65	
7-Jul-94	1	.	4	3	4		9-Apr-95	69	75	88	66	
13-Jul-94	2	.	5	4			15-Apr-95	70	76	89	67	
19-Jul-94	6~7	4~5	10~11	7	9		21-Apr-95	71	77	90	68	
25-Jul-94	15~16	16~17	22~23	13	18		27-Apr-95	72	78	91	69	
31-Jul-94	23	28~29	34~35	19	27		3-May-95	73	79	92	70	
6-Aug-94	24	30	36	20	29		9-May-95	74	80	93	71	
12-Aug-94	25	31	37	21	30		15-May-95	75	.	94	72	
18-Aug-94	26	32	38	22	31		21-May-95	76	81	95	73	
24-Aug-94	27	33	39	23	32		27-May-95	77	82	96	74	
30-Aug-94	28	34	40	24	33		2-Jun-95	78	83	97	75	
5-Sep-94	29	35	.	25			8-Jun-95	.	84	98	76	
11-Sep-94	30	36	41	26			14-Jun-95	.	85	99	77	
17-Sep-94	31	37	42	27			20-Jun-95	79	86	100	78	
23-Sep-94	32	38	43	28			26-Jun-95	.	87	101	79	
29-Sep-94	33	39	44	29	38		2-Jul-95	80	88	102	80	
5-Oct-94	34	40	45	30	39		8-Jul-95	81	89	103	81	
11-Oct-94	*	41	46	.	40		14-Jul-95	82	90	104	82	
17-Oct-94	*	42	47	32	49		20-Jul-95	83	91	105	83	
23-Oct-94	37	43	.	33	.		26-Jul-95	84	92	106	84	
29-Oct-94	38	44	48	34	.		1-Aug-95	85	93	107	85	
4-Nov-94	39	45	49	35			7-Aug-95	86	94	108	86	
10-Nov-94	40	46	50	36			13-Aug-95	87	95	109	87	
16-Nov-94	41	47	51	37			19-Aug-95	88	96	110	88	
22-Nov-94	42	48	52	38	47		25-Aug-95	89	97	111	89	
28-Nov-94	43	49	53	39	.		31-Aug-95	90	98	112	90	99
4-Dec-94	44	50	54	40	49		6-Sep-95	91	99	113	91	100
10-Dec-94	45	51	55	41	50		12-Sep-95	92	100	114	92	101
16-Dec-96	46	52	56	42	51		18-Sep-95	93	101	115	93	102
22-Dec-94	47	53	57	43	52		24-Sep-95	94	102	116	94	103
28-Dec-94	48	54	.	44	.		30-Sep-95	95	103	117	95	102
3-Jan-95	49	55	58	45	54		6-Oct-95	96	104	118	96	105
9-Jan-95	50	56	59	46	55		12-Oct-95	97	105	119	97	106
15-Jan-95	51	57	60	47	56		18-Oct-95	98	106	120	98	107
21-Jan-95	57	63	72	53	62		24-Oct-95	99	107	121	99	108
27-Jan-95	58	64	76	54	63		30-Oct-95	100	108	122	100	109
2-Feb-95	59	65	77	55	64							
8-Feb-95	60	66	78	56	65							
14-Feb-95	.	67	79	57	66							
20-Feb-95	61	.	80	58	67							
26-Feb-95	62	68	81	59	68							
4-Mar-95	63	69	82	60	69							
10-Mar-95	64	70	83	61	70							
16-Mar-95	65	71	84	62	71							
22-Mar-95	66	72	85	63	72							
28-Mar-95	67	73	86	64	73							

Sample was analyzed

[] Sample not taken by operator

[*] Box containing samples lost by UPS

APPENDIX A: LMMBS Data Reporting Flags

- EHT Exceeds Holding Time. Sample was stored for a period longer than holding time criteria.
- MDL Below Method Detection Limit. Sample mass is less than or equal to the method detection limit (MDL).
- LAQ Laboratory Accident. There was an accident in the laboratory that destroyed the sample or rendered the sample unsuitable for analysis.
- RIN Re-Analyzed. Reported mass was generated from a re-injection of the sample extract.
- FBK Found in Blank. Mass determined in sample is < 5x the analyte mass detected in field or laboratory matrix blanks, thus the sample mass may be overestimated.
- FQC Failed Quality Control. Recovery of individual analytes in LPS or LMS is beyond recovery criteria, or internal standards in sample failed quality control.
- NAI Not Analyzed because of Interference. Analyte was not analyzed because of suspected contaminant interference as determined during performance evaluations with laboratory matrix spiked samples (LMS).
- FFD Failed Field Duplicate. Routine field sample and associated field duplicate samples did not satisfy duplicate criteria
- FDL Failed Laboratory Duplicate. Routine field sample and laboratory duplicate sample did not satisfy criteria.
- FSS Failed Surrogate Spike. Surrogate recoveries are outside acceptable range.
- FMS Failed Matrix Spike. Matrix spike recoveries are outside acceptable range; matrix spike and all samples in the batch are flagged.
- FFR Found in Field Reagent Blank.
- FPC Failed Performance Standard Criteria.
- FBS Failed Laboratory Blank. Laboratory blank concentration exceeds criteria.
- FMD Failed Mass Duplicate. Routine field sample and duplicate sample did not have masses within limits.